THE CAUSES & TREATMENT OF BACKWARDNESS

Sir CYRIL BURT

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PREFACE

THE idea that a book of this kind should be written and published is due originally to the Rev. J. W. Waterhouse, Principal of the National Children's Home; and to him my sincerest thanks are offered for his suggestions and assistance. As a result of the wide experience gained in their forty branches, which provide, I understand, for something like 3,000 boys and girls, the workers connected with this enterprising institution had become deeply impressed with the need for making special arrangements for those children in their charge who appeared to be educationally subnormal. Accordingly, in 1952 I was invited to take this topic as the theme for one of their Annual Convocation Lectures; and my address, considerably enlarged and rewritten, was published in the series of small volumes which the Home issues year by year on problems of child welfare.

The first edition, admirably printed by the boys of one of the schools, was quickly exhausted. It appeared, however, that there was still a demand for it; and accordingly the Principal has generously allowed the University of London Press to reset and republish it. I have taken advantage of this arrangement to revise and expand the original material and to add an introductory chapter. In this way, I hope the new edition will meet the more varied interests of the larger circle of readers for whom it is now intended.

The subnormal child has already formed the subject of numerous inquiries and researches; and it seemed to me that the most useful thing that a psychologist could do would be to survey what is already known and what has already been accomplished, and then to summarize the main conclusions in a form available for the ordinary teacher. Thus the immediate purpose of the book is practical rather than theoretical. Yet, as will be seen from the limited success so far achieved in our schools, there are many urgent problems still unsolved; and accordingly, towards the close I have ventured to indicate how the teacher himself may co-operate in the search for a solution.

The results of my own investigations, and those of the numerous colleagues and research students who assisted me during my work as Psychologist in the London County Council's schools, were described and published fifteen years ago in *The Backward Child.*

PREFACE

To some extent the following chapters may be regarded as an abridgement of that larger volume. However, I must confess that I share some of the misgivings often expressed about mere abridgements. Boswell, it may be remembered, once declared that shortening a book was too often " like cutting off the head and the tail of a cow", to which Dr. Johnson replied that "at its best it should be like making the cow produce a calf" I hope I may fairly claim that this book is not a simple curtailment; it is in many ways a fresh book with a different purpose.

The earlier volume was addressed primarily to psychologists, education officials, and research workers; it sought to marshal, in the form of tables and statistical arguments, convincing proofs for the various conclusions reached. At that time many of the inferences drawn were new enough or doubtful enough to call for detailed evidence. Today, as a result of a long series of carefully planned inquiries, based partly on the study of detailed case-histories and partly on an analysis of data obtained from school surveys, most of these conclusions would, I think, be accepted by nearly all educational psychologists. Here, therefore, I have sought to hand on this knowledge to the practical teacher in the classroom, and so to help him in his everyday work. As far as possible, I have tried to cut out all technicalities and abstract discussions. Should the reader be inclined to question some of the statements made, or feel that his own experience points in a different direction, he will, as a rule, find the available evidence set forth more fully in the various books and articles that are cited in the footnotes or mentioned in the list of references at the end. At the same time, I have incorporated a good deal of the fresh information that has accumulated since the earlier volume was published; and I have revised and rearranged the main recommendations, so that the terminology and the conditions envisaged may fit more appropriately into the modified schemes of educational provision contemplated under the Education Act of 1944. Throughout the book my chief aim has been to show that the treatment of the dull and backward, if it is to be truly effective, must be not only sympathetic but also scientific, and, above all, based on a genuine understanding of the needs and aptitudes of each individual child.

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JULY 1953

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I

THE PROBLEM AND ITS ORIGIN

EVER since the first "whining schoolboy . . crept like snail unwillingly to school", the harassed teacher has been faced with the problem of the backward child. Nor has there been any dearth of advice as to how the problem should be tackled. Philosophers, doctors, and men of the world have always been ready to explain what the schoolmaster should do. Yet, more often than not, their precepts flatly contradict each other, and are thus of little practical service. Dr. Johnson declared that "stupidity is commonly the result of stubbornness, and severity must be continued till negligence be cured. My master whipt me very well; without that, Sir, I should have done nothing." Hobbes, on the other hand, held that "the fool cannot be mended by flogging, and he who flogs is the greater fool" Within the last hundred years or so "education for all the children of all the people" has become an accepted principle. But that has only doubled the teacher's difficulties, and increased the number of dull and backward pupils. Indeed, many have ventured to doubt whether "all the children of all the people" can, in any genuine sense, be educated. Yet, strange to say, not until after the First World War were any systematic attempts undertaken to ascertain at first hand what are the real causes of backwardness, or to assess the value of the remedies advocated by comparing the results achieved.

In 1868, when a Dorset Quaker first introduced into Parliament a Bill for a national system of elementary education, there were men of experience in both political parties who pronounced the notion of schools for everyone to be merely a Utopian dream.[1] "You may train your hounds and your pointers," said the Mem-

[1] As early as 1853, Lord John Russell, grandfather of the present Earl and the author of the first Reform Bill, had proposed to complete his reforms by establishing a scheme of public elementary schools, based on rate-aid and beginning with the boroughs. But the 'Borough Bill' failed to pass. During most of the nineteenth century, education was the cockpit of sectarian disputes; and it was only the skilful compromise produced by Forster at his second attempt that at last overcame the opposition of both Church and Chapel.

ber for Newark, "but never the hare or the fox." In Birmingham, it was reported, forty children out of every hundred were roaming all day in the streets; in Manchester, as many as fifty [1]; and the sceptics roundly declared that "to suppose that youngsters who have hitherto run wild will prove amenable to the discipline or instruction of the classroom is the climax of absurdity" Even Gladstone told Queen Victoria that he considered the author of the Bill to be 'a most impracticable man'.

Two years later, having won over the Liberal leader, Forster secured the passage of a modified version of his scheme. The blanks in the educational map were to be filled by schools governed by elected Boards and financed from the local rates. During the first two or three years, however, the actual results seemed almost to justify the pessimists. It had been necessary to allow the voluntary schools to refuse the duller and more troublesome youngsters if they wished. Hence, in many of the new Board Schools which were obliged to accept the rejects, there was "an aggregation of difficult children, urchins who could not be taught, ruffians who could not be controlled".[2] Whether this state of things was just an initial phase or whether it would prove permanent and inevitable, no one at that time could foresee.

The Utilitarians, who then formed the dominant school of psychology, still took a sanguine view. "The low intellectual and moral condition of the masses," they maintained, "is merely a secondary consequence of the degraded conditions under which the people live, and could be remedied in a single generation by putting every child in an efficient school." The aphorism of Helvétius was their watchword: 'L'éducation peut tout'; or, as James Mill translated it, with a mild reservation: "If education cannot do everything, there is hardly anything it cannot do." Their opponents invoked the authority of Aristotle, who had declared that human beings included many who were formed to be 'slaves by nature', hewers of wood and drawers of water, marked off from birth by an inherent mental inferiority, which no amount of education could possibly redeem. With Carlyle they argued that everyday experi-

Young, G. M., *Victorian England: The Portrait of an Age* (1936), p. 116. A few years earlier the Newcastle Commission of 1861 estimated that only one child in seven attended any school at all, and only one in twenty was instructed at a school whose efficiency could be guaranteed.

[2] Cf. Warner, F., *Lectures on Mental Faculty*, 1890, p. 134 (partly reprinted from an earlier article in the *Journal of the Royal Statistical Society*).

ence was sufficient to refute the "new-fangled dogma of 'the equality of man'—any man equal to any other, Quashee Nigger to Socrates or Shakespeare"

Nevertheless, despite these misgivings, the Conservatives decided to complete what the Liberals had begun; and in 1878 Disraeli boldly extended Forster's Act by a supplementary Bill making school attendance at once universal and compulsory. In the course of the debate a composite verdict seems in the end to have prevailed, namely that what the opponents of the measure had declared was largely true, but what its supporters were proposing was altogether necessary. The solid blocks of red brick, planned by the Board School architects, began to rise above the slate roofs of the more populous suburbs. The parish beadle, already a figure of fun in the pages of Dickens, was transformed into the attendance officer, 'the school board man'. Her Majesty's Inspectors, Matthew Arnold among them,[1] visited the crowded classrooms year by year, and examined the pupils to see how many failed to reach the 'standards' imposed by the Board's code.

The proportion of failures remained deplorably high. The teachers themselves began to insist that many of their pupils were inherently incapable of rising to the Board's requirements in reading, writing, and arithmetic, and that "not a few were warped beyond reclaim in their mental and moral constitution" Medical officers supported much the same conclusion, but on rather different grounds. Basing their views on physiological analogies, they argued that, "just as the child's heart, lungs, or any other organ may be damaged either by morbid heredity, early disease, or by continued malnutrition, so his brain may be impaired by precisely the same causes; and the inner pathological defect will

[1] Arnold was appointed Chief Inspector of the Metropolitan Division of Westminster in 1870. My father, a Westminster doctor, used to relate how Arnold once visited a school where he was working. Looking first at the young pupil teachers who were in charge of the classes, then at the lads waiting in rows to be taught, the apostle of culture readjusted his monocle, and waved a graceful hand towards the benches, murmuring: "Ah, *these*, I suppose, are the children?" It is worth recalling that "in his reports on primary schools Arnold was among the first to advocate the adaptation of studies to the aptitudes of the pupils, and strongly urged that the examination grant ['payment by results'] should be abolished entirely. . If in the classroom the children looked happy, he would send in a favourable report without inquiring too closely whether or not the more backward could pass the stock examination" (Sir Joshua Fitch, *Thomas and Matthew Arnold, and their Influence on Education,* 1901).

be discernible to the physician by outer signs and symptoms of a diagnostic type, pointing specifically to the location of the weakness". Most of the cases, it was contended, might be readily identified by measurements of the skull and by the presence of anatomical stigmata and 'signs of nerve-weakness'.[1]

Largely as a result of representations from both professions, the Elementary Education (Defective and Epileptic Children) Act was passed in 1899. With minor modifications the statutory definition followed the formula proposed by the Royal College of Physicians; and a new group of mental defectives was recognized, namely those "who, not being imbecile, and not being merely dull and backward, are, by reason of mental defect, incapable of receiving proper benefit from the instruction in the ordinary public elementary schools, but are not incapable by reason of such defect of receiving benefit in such special classes or schools as are in this Act mentioned"

This somewhat ambiguous wording had to be adopted because even the medical authorities were divided over details. The environmentalists (as they styled themselves) argued that, in the vast majority of cases, all that was needed was a more adequate nourishment for both body and brain and a more sympathetic type of treatment of the child's infirmities; and the weakly dunce, like Smike from Dotheboys Hall, could be speedily transformed into a decent citizen, if not into a competent scholar. The hereditarians retorted—"once a defective, always a defective", and predicted that the greater proportion would prove incurable.[2]

It was a bewildering controversy; and teachers began to wonder which of the theorists, if any, was to be believed. Quick, in his book on educational reformers,[3] after glancing at these 'physiological disputes', sets side by side in an allegorical footnote two fables: the first, by Rousseau, relates how "a brace of puppies from the same litter, brought up in precisely the same way, nevertheless developed opposite characteristics as a direct result of natural constitution"; the second, by Pestalozzi, tells how two

[1] Cf. Warner, *loc. cit.*, pp. 142 f.

[2] See the Reports of the Departmental Committee set up in 1897 "to inquire into the education of feeble-minded children . . and to report on the best means for distinguishing educable and non-educable children", and of the Royal Commission appointed in 1904 to report on the care and control of the feebleminded; also the discussions in the earlier numbers of the *Eugenics Review*.

[3] Quick, R. H., *Educational Reformers* (1890), p. 312.

colts, at first as like as a couple of eggs, turned out as different as Rousseau's two dogs, solely in consequence of their treatment and training. Quick offers no comment; he merely tells each tale "as 'twas told to him" But the implication is obvious: every theorist is apt to pin his faith to one type of explanation to the exclusion of the other; the practical schoolmaster suspects that, with human beings as with horses and dogs, both causes are likely to be operative in varying degrees.

Those who planned the earliest types of special school favoured an optimistic policy. As the Senior Medical Officer to the London County Council tells us—"recovery and improvement were at first the key-notes; and the period of compulsory education was in such cases extended to the age of sixteen, because it was supposed that, when a child had been handicapped at the start, he might nevertheless catch up with his fellows were he granted an extension of time".[1] These hopes in the main were disappointed. In the end even the doctors agreed that "the few successes were chiefly attributable to mistakes in the original diagnosis"

It was therefore considered desirable to discriminate between curable and incurable types. In future only the incurable were to be certified. Later enactments made a more stringent attempt at interpreting the notion of 'mental defect', which the Act of 1899 had left undefined. The formula ultimately adopted was that "mental defectiveness means a condition of arrested or incomplete development of mind, existing before the age of 18 years, whether arising from inherent causes or induced by disease or injury" Accepting the more detailed classification proposed by the Royal College of Physicians and endorsed by the Royal Commission, the new Mental Deficiency Acts proposed to distinguish two main types of deficiency and three main grades. There were first what they termed the 'mentally defective' (the word 'mental' being used in a somewhat narrow sense as a synonym for 'intellectual'). Of these, the two lower grades—the idiots and the imbeciles—were considered ineducable; children belonging to the highest grade—the so-called feebleminded—were to be examined and certified by a medical officer, and then transferred to a special school. The second main type consisted of the 'moral imbeciles', in whom the distinctive feature was asserted to be "strong vicious or criminal

[1] Shrubsall, F. C., and Williams, A. C., *Mental Deficiency Practice*, p. 4.

propensities on which punishment has had little or no deterrent effect"

Cases in which either type of defectiveness had been "induced by disease or injury" were considered rare; and the general assumption was that, with few exceptions, children falling into the first of the categories were innately lacking in those higher cognitive faculties indispensable for scholastic education, and that those falling into the second were innately lacking in what the medical writers of those days termed the 'moral sense'.[1] However, the description of this latter group was open to serious criticism. As one writer observed: "Children described as 'moral imbeciles' are neither 'moral' nor 'imbecile', and to secure a diagnosis we are apparently required to inflict useless punishment simply to show that punishment is in fact useless." Hence for purposes of certification the clause very quickly went out of use.[2]

To the scientific critic it seemed evident that both the definitions and the practical proposals were based on little but ingenious guess-work. The teachers, who were expected to nominate cases for the statutory medical examination, complained that there were no clear borderlines demarcating the various grades and types in the way the Acts presupposed. The differences between one pupil and another were differences in degree rather than in kind; and the legal specifications failed to give any indication as to *how* incomplete, or *how* deeply arrested, the child's development should be before he is deemed mentally deficient within the meaning of the Act.

Nevertheless, for administrative purposes some kind of subdivision appeared both necessary and feasible. Psychological writers, adopting the threefold classification of mental characteristics that had become traditional, suggested that three broad classes might be recognized—the intellectually subnormal, the morally subnormal, and the emotionally subnormal; and that the various grades might be defined in terms of a mental age.

[1] Cf. Tredgold, A. F., *Mental Deficiency* (1927), pp. 42 f., 313 f. For data on the apparent inheritance of mental deficiency, as diagnosed in school children, see Burt, C., *The Subnormal Mind* (1935), pp. 77 f. For a more recent discussion of the genetics of the problem, see Penrose, L. S., *The Biology of Mental Defect* (1949).

[2] See *Report of the Mental Deficiency Committee,* 1929, Part II, p. 53; Shrubsall and Williams, *op. cit.*, p. 226.

Moreover, since it had become increasingly plain that there was no sharp boundary, such as medical writers had assumed, which separated the certifiable cases from the non-certifiable, they urged that "the defective, the dull, and the backward should be viewed together, and treated as forming one broad problem, and that provision for the entire group should be planned and carried out as an organized whole". An obvious corollary followed, namely, that "certification should be abolished since it brands the child with a needless stigma".[1]

This recommendation was eventually put into force by the Education Act of 1944. Its provisions enumerate as many as eleven different categories of 'handicapped children'. There are first those whose defects are primarily physical, namely the 'epileptic', the 'diabetic', the 'delicate', and those afflicted by 'other physical infirmities'. There are, secondly, those who suffer from some sensory or motor defect interfering with education by ordinary methods—the blind and the partially blind, the deaf and the partially deaf, and those with speech defects. Thirdly, there are the 'educationally subnormal'—a large class comprising what were formerly termed educable defectives as well as the innately dull and the merely backward. Last of all, there are those whom the Act describes as 'maladjusted', a term which appears intended to cover the emotionally subnormal (or psychoneurotic, as they are sometimes called), the morally subnormal (or delinquent), and those who suffer from some kind of social handicap imposed by their home surroundings.

It is with the group designated 'educationally subnormal'—the largest group of all—that this book is primarily concerned. The distinguishing mark of such children is that they are seriously backward in all their school work. Their backwardness, however, may spring from a wide diversity of causes. Quite apart from varying degrees of mental inferiority, the backward child, as we shall presently see, may also be physically defective, morally defective, emotionally defective, or socially maladjusted; thus the various categories overlap. Moreover, his disabilities may be either inborn or acquired, or (most commonly) the joint effect of both factors working together. How all these different con-

[1] Burt, C., *The Subnormal Mind*, p. 104. My arguments for this recommendation were set out in detail in the earlier *Reports of the Council's Psychologist*, there quoted.

ditions and causal influences can be disentangled and detected, it will be our main task to inquire.

Backwardness is not merely an educational problem—it is a social problem. From the ranks of the educationally subnormal most of our paupers, criminals, and ne'er-do-wells are recruited. Even the few who do nothing to incur official condemnation "can scarcely", as one writer puts it, "be deemed creditable members of a democratic state" In spite of all our efforts, educational subnormality appears nowadays to be still more widespread among the adult population than it was among the school population when those adults were children. The librarians inform us that over 40 per cent of the men and women in the country never open a book; and among the rest the majority read only the crudest type of fiction. Inquiries carried out during the war on the educational attainments of recruits indicate that over 2 per cent of the population are still wholly illiterate and nearly 20 per cent semi-illiterate.

No doubt, when we recall the past, the figures reveal a marked degree of progress. Those who seek comparable data for the condition of the nation a century ago may find them summarized in Macaulay's speech on Lord John Russell's 'Borough Bill'. Of the 8,000 prisoners who passed through Maidstone jail, only 50, he tells us, could read and write decently; in the House of Correction at Hertford, out of 700 inmates one half could not read at all; among 150,000 couples married during the year, 40,000 bridegrooms and 60,000 brides could not sign their names, but merely made their marks.[1] When we go back a few centuries earlier, we discover that all "honest plain-dealing men had a mark to themselves", and that in the popular eye a fellow who could "read and write and cast accompt" was strange enough to incur suspicion of being a foreign spy. When the poor clerk from Clerkenwell was hauled before Cade and owned that he could sign his name, the cry went up: "A villain and a traitor! He hath confessed. Hang him with his pen and inkhorn about his neck." [2]

Nevertheless, if today at least one in five is semi-illiterate, the results of our efforts to 'educate the people' must seem sadly disappointing. Moreover, so we are told, "the low cultural level of

[1] Macaulay, T. B., *Speeches on Politics,* p. 359.
[2] 2 *Henry VI,* Act IV, Sc. ii, ll. 106–8.

the masses stands painfully revealed by first-hand studies of their daily lives—by the way they pass their leisure, the kind of entertainment they enjoy, the follies on which they spend their augmented wages, the ease with which they are swayed by the agitator and the demagogue" We need not perhaps altogether accept the sombre inferences that some of the social investigators have been disposed to draw. In the most gloomy reports there is at times a more hopeful gleam. For example, the work among recruits for the Army has shown that, even among those who have long left school, the institution of special classes can do much to reduce the amount of illiteracy.[1] But (the critic will at once rejoin) if that is so, does it not cast a still graver reflection on the methods adopted in our schools today? Has not the abolition of the old form of inspection produced a regrettable slump in the standard of results achieved?

In ancient China, when a man was convicted of a heinous crime, it was the custom for the court to pronounce sentence of death, not only on the malefactor but also on his teacher. And in much the same spirit, if we may judge from correspondence columns of the Press, there is a growing inclination to lay the chief blame on the school and make the teacher the scapegoat. The psychologist who has an inside knowledge of what is being done in the schoolroom would be the last to subscribe to such censures. Nevertheless, he too may venture to suggest that, in spite of classes that are far too large and equipment that is far too scanty, something better could still be accomplished by a more intensive study and a more appropriate treatment of the backward child.

As with many of the problems that perplex us, the most promising solution is to be sought in the adoption of a more scientific approach. It is an approach of this kind—the approach of the experimental scientist, not of the deductive theorist or the champion of so-called common sense—that I shall endeavour to advocate and describe. In the abstract the essential steps are obvious. The first thing is to discover, at the earliest possible age, which pupils are actually backward or in danger of becoming 'educationally subnormal'; the next will be to determine, in each par-

[1] Cf. Rowntree, B. S., and Lavers, G. R., *English Life and Leisure* (1951); and Burt, C., 'The Education of Illiterate Adults', *Brit. J. Educ. Psychol.*, XV, 1945, pp. 20–7 and refs.

ticular case, what is the precise nature of the child's shortcomings and what are the underlying causes; only then shall we be in a position to proceed to the third and most important step of all—the provision of more suitable types of training, adapted to each individual boy or girl. With this statement of the programme every teacher would doubtless agree; but how, he asks, are we to set about these very obvious aims?

Backwardness is at bottom a psychological characteristic; and the various means of investigating and dealing with such characteristics form the subject of a special branch of mental science—a branch which is familiarly described as 'child study' Before we go further, therefore, it will be well to inquire what particular techniques the teacher can borrow from the specialist in this field, in the hope of making his own methods of work more efficient and their results more successful and more stable. What, in short, is psychology, and how can it help?

II

A BRIEF HISTORY OF CHILD STUDY

THE TASK OF PSYCHOLOGY

POPULAR books on child psychology reveal considerable differences of opinion about what the psychologist is seeking to do and the methods by which he attempts to achieve his aims. Many writers, especially among the medical profession, hold that the proper concern of the psychologist is the assessment of the child's intellectual and educational abilities, and his chief task the administration of mental tests; the study of problems of behaviour, they consider, should be the business of the psychiatrist. Others, like Dr. Kirman, Dr. Blackburn, and Dr. J. C. Hill, emphasize what they believe to be 'the fallacies of psychological testing', and fear that such tests may unfairly condemn the child from the unintellectual home to a life in a special school or an institution as mentally defective. Others again, like Dr. Mackenzie, hold that "mental tests unquestionably have their value and their uses, but form only one of the many methods the psychologist should adopt; so far from being limited to the study of intellectual abilities which alone our present-day tests are competent to assess, the psychologist is concerned with the whole of the 'psyche'—the entire personality and behaviour of the child"

When experts differ so widely, it is no wonder that the plain man feels somewhat bewildered. From the daily press and from casual conversation one gathers that members of the general public are not quite sure whether psychology is another name for phrenology, psychiatry, psychoanalysis, or psychical research; but in any case they are inclined to suppose that it is just another pseudo-scientific fad, recently imported from America, and bringing with it strong elements of quackery and sensationalism. The magistrate, the teacher, and the school medical officer are almost equally distrustful of 'academic psychology', but are willing to accept a practical form known as 'child guidance'. If asked what that means, they commonly reply with Dr. Moodie, "child guidance is a branch of clinical medicine, and as such is

becoming more exact in its knowledge and more successful in its results".[1]

May I therefore begin by trying to explain what psychology is and what it is not, and how it differs from psychiatry, with which it is frequently confused; and then go on quite briefly to describe how, in the course of its development, it has helped to throw light on the needs and capacities of the normal child and on the causes and treatment of those who appear in one way or another to be subnormal?

DEFINITIONS

Both lay and medical writers frequently describe psychology as the 'physiology of the brain'; and parents, teachers, and child-care workers are apt to suppose that if a child is backward or subnormal his condition must be caused by some physiological defect. Sometimes they suggest that it is due to what they call a 'kink in the brain'; sometimes they declare that the child 'has no brains at all'. Where the disturbance is emotional rather than intellectual, it is popularly attributed to the child's 'nerves'.

Now, the context of such phrases suggests that in ordinary conversation these anatomical terms are usually to be understood in a metaphorical rather than a literal sense. Nevertheless, their general effect is that most people suppose that psychology is concerned with the study of the nerves and brain. As such, therefore, psychology would be a part of the science of physiology. But the ordinary man erroneously supposes that the expert on physiology is the physician. Hence arises the widespread conclusion (shared, strange to say, by not a few doctors)—namely, that psychology is, or ought to be, a branch of medicine.

The problem is not merely a dispute about words. The notion that educational subnormality is the result of a physical defect, which can be cured by glandular extracts, brain-surgery, or 'a tonic for the nerves', is very widespread. Often the fear that the doctor will pronounce the child to be 'mental' (i.e. mentally defective or insane) actually prevents parents from bringing their children to the psychological clinic.[2]

[1] *The Doctor and the Difficult Child*, by William Moodie, M.D., Director of the London Child Guidance Clinic (New York: The Commonwealth Fund, 1940), p. viii.

[2] Dr. Alexander, formerly Education Officer for Sheffield, has shown how very real this factor can be in preventing parents from seeking psychological

Moreover, since the doctor, as a rule, has made no special study of psychology, and therefore possesses no authentic knowledge about the operations of the mind, he commonly falls back on analogies or metaphors drawn from his own familiar field. He talks of "supplying the mind with suitable nutriment" (as though the mind was a kind of stomach), of "strengthening its faculties by daily exercise" (as though they were muscles), of "stimulating the growing intelligence" (as if it was a sense organ or gland). Sometimes the metaphors are concealed by erudite locutions with a technical ring: violent emotions are said to produce 'traumata' or 'lesions'; habitual pilfering is diagnosed as 'kleptomania'; those who "from an early age show habitual abnormal reactions, which cannot be regarded as symptoms of mental deficiency, insanity, or psychoneurosis" are designated 'psychopaths'; and one clinician even labels some of his patients 'sociopaths' on the ground that they suffer from "an inflamed and swollen ego".[1]

Psychology then is to be regarded as a distinct and independent branch of science. But if so, how are we to interpret the term?

Like the names of most modern sciences, the word is borrowed from the Greek. It might be translated as the '-logy' (i.e. the 'logic' or science) of the 'psyche' (i.e. the mind or soul). It is thus concerned not with the brain but with the mind; and it is important to realize that, as Sir Charles Sherrington, our leading neurologist, has always emphasized, "we know far more about the mind than we do about the brain" After all, consciousness is not, and cannot be, a purely material process. By its very nature it is unique. Hence, though it may be conditioned by the material structure of the brain, it certainly cannot be produced by it. Whoever it was that searched the heavens with a telescope and could find no God would have failed equally to discover a

advice even when the teacher or school medical officer has recommended it. (*The Child Guidance Clinic in Practice: A Report on the Sheffield Clinic.*)

[1] Nearly all the expressions I have quoted are drawn from official reports on cases referred to clinics by school teachers; similar phrases are to be found in various medical publications. However, many eminent psychiatrists are as critical of such descriptions as I have been. And it is instructive to note that in a recent survey of *Modern Trends in Psychological Medicine* (1948) one authority gives a detailed classification of 'psychopathic personalities' (pp. 201–18), while another (p. 191) assures us that the term "was useful as a lay description which scientifically means little", but is now "being given up" (pp. 191–2).

child's mind though he searched the brain with the finest microscope.

Psychiatry is likewise a word taken from the Greek and, literally translated, means "the healing of the mind or psyche" Thus psychiatry is concerned with *the diagnosis and treatment of mental disorders*, whereas psychology is concerned with *the scientific study of all forms of mental process, normal as well as abnormal.* Until recently psychiatry was occupied almost exclusively with organic diseases, i.e. mental disorders in which the cause is physical (e.g. a tumour, an inflammation of the brain, or an infection by micro-organisms). The psychiatrist's training is therefore still mainly medical. Many of them, if not most, have had no training in psychology at all [1]; and, indeed, for the kind of work in which they are commonly engaged—work in mental hospitals—it would perhaps be of little value. On the other hand, few psychologists have had a medical training. Hence the psychologist is not competent to diagnose actual disease, whether physical or mental, or to prescribe treatment for such diseases.

The investigation of the general nature of the mind or soul—that is, of the basis of consciousness, whatever it may be—is at least as old as Aristotle. But for nearly two thousand years it remained as it had begun—a branch of philosophy rather than a branch of science. However, about a century ago attempts were systematically made to reach psychological conclusions by means of first-hand observation and experiment instead of by theoretical speculation and deduction. And the progressive use of exact and objective techniques, and still more the introduction of a genetic or evolutionary standpoint, have at last given psychology a well-established place among the rest of the natural sciences.

In view of this altered method of approach we should, I think, modify our initial definition. A moment ago, adopting a literal translation, I interpreted psychology to mean 'the study of the soul'. Now, like Malvolio, I 'think highly of the soul'. But the theological associations that cluster about that term make it unsuited to designate the subject-matter of a natural science. Hence I suggest a somewhat humbler definition: psychology is *the inductive science of mental life.* It thus becomes a part, not of physiology, but of biology, i.e. of the science of life in general.

[1] See *Report of the Interdepartmental Committee on Medical Schools* (H.M. Stationery Office, 1944), ch. xiii, 'Psychiatry'.

And by describing it as an inductive or empirical science we distinguish modern psychology from the older philosophical brands, which sought to determine the characteristics of the mind by deductive reasoning rather than by observation and verification.

Psychology has various subdivisions. General psychology deals with mind in the abstract—with the universal characteristics of mental life. But the teacher has to deal with mind in the concrete—the mental lives of particular children. In what follows, therefore, we shall be concerned not with general but with individual psychology; that is to say, with the specific subdivision which deals with the mental differences between different individuals. As a subject of scientific inquiry this is comparatively new. There is a widespread notion that any enlightened person with a little worldly experience is competent to express an opinion on the mental characteristics of other individuals—to say who is normal and who is not, or to explain what may reasonably be expected of children at this age of life or that, or how the backward, the dull, and the delinquent should be detected and treated. The psychologist maintains that, whether the pronouncements of common sense are right or wrong, they cannot be taken for granted until they have been methodically subjected to empirical verification, and in that way *proved.*[1]

In the more popular forms of individual psychology the natural tendency has been to look for outward and visible signs of inner mental differences. It is always tempting to compare the features of certain individuals with those of animals. In our colloquial descriptions we talk of a 'horsy' or a 'foxy' face, of Tommy having 'rabbit's teeth' or Johnny having 'donkey's ears'; and an early Greek treatise on *Physiognomy*, bearing Aristotle's name, ascribes to such persons the characteristics of the creatures they are supposed to resemble, and makes an elaborate diagnostic system out of these popular fancies. This use of zoological analogies—the notion that a person with a face or a head like a fox, a sheep, a pig, or a lion has the mental qualities of those animals—

[1] It must be remembered that, in an *inductive* science, the most we can prove is a *probable* conclusion; only in a *deductive* science, like mathematics, can we prove *certain* conclusions. Thus, to cite one or two cases where, say, a child has been misclassified by an intelligence test does not suffice to demonstrate that the intelligence test is worthless. What we want to know is, how great is the *proportion* of cases in which such misclassifications are found.

is based on one of the oldest types of individual psychology. It was derived from the Pythagorean doctrine of transmigration, and accepted by portrait-painters from Leonardo to Lebrun. It is still extremely popular among novelists and in the descriptive reports sent in by many teachers. But probably such language is not meant to be taken too seriously, and often seems to be adopted for the sake of the picturesque comparisons it provides.

Later Greek writers of the Hippocratic school supposed that certain fluids or 'humours' mingling in the body—blood, phlegm, yellow bile, and black bile—produced certain characteristic 'temperaments'—the sanguine, the phlegmatic, the bilious or choleric, and the atrabilious or melancholic, and at the same time modified the shape of the body and the colour of the hair and complexion. Like other ancient beliefs, these notions have survived in many modern medical textbooks. The doctrine of 'stigmata of degeneracy' (i.e. peculiarities in the features of the face and other visible parts supposed to be indicative of mental degeneracy), Kretschmer's well-known theory of body-types, the familiar portraits of so-called endocrinological types, are modernized versions of these traditional views; and we shall see that they are not wholly devoid of an empirical basis.

THE DEVELOPMENT OF INDIVIDUAL PSYCHOLOGY

During the nineteenth century the growing interest in the physiology of the brain encouraged the notion that individual differences in mental characteristics could be diagnosed by comparing individual differences in its conformation; and, in the living person, such differences, it was supposed, could be inferred from deviations in the shape of the skull. Thus it was widely believed that a small head was a sure sign of mental deficiency, and that persons of high intelligence had large and well-developed skulls, with prominent brows. The discovery of what was thought to be a brain-centre for speech seemed to confirm the notion that mental capacities were located in certain definite areas of the brain; and a scheme of diagnosis, based partly on zoological comparisons and later known as 'phrenology', became widely accepted by many medical men. There is a quizzical but perfectly correct account of the doctrine contained in the address said to have been given to Squire Headlong's guests by the 'cele-

brated Dr. McCranium'.[1] "Every faculty of the mind," the lecturer declared, tenderly stroking the skulls laid out before him, "has its corresponding organ in the cerebrum. According as each faculty is powerful or imperfect, their organs are enlarged or shrunken; and their development becomes externally obvious by proportionate bumps and lumps, exuberances and protuberances, on the osseous surface of the skull." And then the narrator of this entertaining scene cannot resist a touch of caricature: "Here," continues the doctor, "we have the skull of a beaver, and here that of Sir Christopher Wren: in both specimens you observe a prodigious organ for construction. Every parent who has the welfare of his son at heart should have the lad's cerebral organs examined; if his skull is shaped like a magpie's, it cannot be doubted that he has the making of an excellent lawyer; if like an owl, that of a judge"; and so on, in Peacock's droll but inimitable style.

What is now the chair of psychology at Edinburgh was actually founded by an ardent champion of this doctrine—George Combe; and the current terms that novelists and biographers use in describing the faculties, propensities, and dispositions of their characters are still drawn very largely from the vocabulary of the phrenologists. One of the earliest surveys carried out to discover the prevalence of backwardness in elementary schools was that of Francis Warner, Professor of Anatomy and Physiology in the Royal College of Surgeons, who relied on an inspection of children's heads and faces for symptoms of defective brain development and for what he termed 'nerve signs'.[2] Even during the present century, when I myself started my work in London schools some forty years ago, there was a surprising number of teachers and school doctors who took their principles and methods of mental assessment from such

[1] Peacock, T. L., *Headlong Hall*, ch. xii. (In compressing the lecture, I have taken slight liberties with the text.) The popularity of the subject is instanced by the fact that as a child George Eliot had her head shaved for an examination by Combe. Herbert Spencer, for a while one of Combe's most ardent disciples, after inspecting the head of the future Mrs. Sydney Webb, announced that "to a phrenologist the singularities of her character appear obvious" (Elizabeth Haldane, *George Eliot and Her Times*, 1927: Beatrice Webb, *My Apprenticeship*, 1926).

[2] Warner, F., *Lectures on Mental Faculty*, 1890, pp. 134 f. (taken from a Report of the Charity Organization Society, which was largely responsible for Dr. Warner's inquiry).

books as *Scientific Phrenology* by Bernard Hollander, M.D. Medical officers still attempted to diagnose intellectual deficiency by measuring the child's head with a tape measure and looking for what they called anatomical stigmata. The leading brain surgeon of the day, Sir Victor Horsley, held that the most effective way of treating mental deficiency was to cut the bones of the skull at an early age so that the brain had more room to grow.

However, long before the nineteenth century came to a close, academic psychologists had rejected the old-fashioned faculty psychology that had been popularized by the theories of the phrenologists. The early maps of the brain published by phrenological writers proved to be hopelessly wrong in detail; and the absurd errors made by those who attempted to infer mental characteristics from physical signs brought the whole subject of individual psychology into disrepute. There it remained—a superstition rather than a science—until about seventy years ago.

The fertile investigator who first introduced a scientific approach to the psychology of the individual child was Sir Francis Galton.[1] He insisted that all such conclusions needed to be checked by new experimental and statistical techniques. And to this end he invented the experimental device of mental testing and the statistical method known as correlation.

THE FIRST ATTEMPTS AT CHILD GUIDANCE

It is a prevailing notion, repeated in many books on child psychology and child guidance, that mental tests were a French invention due to Binet, and child guidance an American invention brought to this country as part of the Commonwealth Fund's programme for the suppression of delinquency in 1925.[2] Actually, both are of English origin. The idea of mental testing was borrowed by Binet from Galton; and the idea of a child guidance

[1] Murphy, G., *A Historical Introduction to Modern Psychology*, 1949, pp. 117 f.; Flugel, J. C., *A Hundred Years of Psychology*, 1933, pp. 126 f.

[2] This view is to be found, for example, in several popular books on child psychology, e.g. the *Introduction to Child Guidance*, by W. M. Burbury, E. M. Balint, and B. J. Yapp, 1945, p. 3. A more accurate account is to be found in Miss Gertrude Keir's article cited below. In America the first 'psychological clinic' was set up in 1896, under Lightner Witmer, at the University of Pennsylvania, where Cattell had been appointed to the first Chair of Psychology in that country. It was thus later than the work on similar lines already started in London by Galton and Sully.

clinic was introduced into America by J. M. Cattell, who was one of the first of Galton's fellow-workers.

Galton considered that body and mind should be studied together—that "the corpse should not be separated from the ghost" Hence he called himself not a psychologist but an anthropologist. He established what was virtually the earliest child guidance centre, and named it an 'anthropometric laboratory'. It was first opened in London in 1884 in connection with the International Health Exhibition, and, after several removals, was finally established at University College. The College still possesses one of Galton's coloured publicity sheets, which explains that "The laboratory has been instituted for the measurement of human form and faculty. The charge is 3*d.* to those on the register, 4*d.* to those who are not." He specially urged the need for a scientific study of those who seemed subnormal in either educational progress or behaviour; and in a later announcement parents and teachers were asked to consider "whether it is worth your while to pay less than a shilling to have your boys and girls measured either to learn their powers or to obtain timely warning of remediable faults in development" In order to study such children more effectively, he evolved a systematic case-history sheet for gathering and summarizing information on each individual pupil—a scheme which formed the basis of similar record sheets developed for use in the London schools a few years later. A simplified version, he thought, might be used for a 'register or schedule'—a 'school record card' as we should call it—which he suggested should be regularly filled up by schoolmasters.

Galton was a man of wealth, and held no official position in the University. The first psychological laboratory to be established in any British university or college was that opened by James Sully at University College, London. Sully was a close friend and admirer of Galton, and in 1893 was appointed Professor of Mind and Logic. The development of experimental work was due chiefly to McDougall, who was Sully's assistant and Director of the Laboratory from 1899 to 1907; the development of statistical techniques we owe mainly to the untiring efforts of Galton's most famous pupil, Karl Pearson, working in what was then called the Biometric Laboratory. It was largely as a result of the labours of these men—Galton, Pearson, Sully,

and McDougall—that University College became, and has since remained, "the chief centre for the scientific study of individual differences and child development", with students flocking to it from every quarter of the Commonwealth.

Sully's department included a branch for education; and his own personal interests lay in the field of child psychology. At that date a large part of what is now the psychological laboratory housed University College School. Here Sully found considerable material for his own investigations and those of his students. But he also encouraged both teachers and parents of children of the poorer classes to bring backward or difficult pupils to the laboratory for examination.

THE EDUCATIONALLY SUBNORMAL

As we have seen, when universal education was first introduced and school attendance made compulsory by the Acts of 1870 and 1878, it was widely assumed that the mental differences between adults were due almost entirely to lack of opportunity and adequate instruction. Ten years or so were sufficient to bring home to the teachers that many children were, at least under existing conditions, quite incapable of coming up to the 'standards' laid down in the Board of Education's code. They were, in fact, educationally subnormal; indeed, in the view of many medical men they were certifiably defective.

Sully, however, was able to show that a large number who were labelled by doctors as 'feebleminded' on the basis of purely physical symptoms were not, in point of fact, suffering from any *inborn* mental defect, but from some temporary and curable form of backwardness, which resulted "sometimes from unsuitable methods of teaching, sometimes from emotional or moral disturbances, and most frequently of all from unsatisfactory home conditions." He noted that, contrary to the assumptions of the medical writers, genuinely pathological disorders of the mind were comparatively rare during childhood, and that, save for an almost negligible proportion, most of the children diagnosed as mentally defective were merely the tail-end of a normally distributed population; in fact, in the majority of cases the differences were simply differences of degree.

Throughout he insisted that mental characteristics should be judged by mental symptoms rather than by physical. For this

purpose he proposed to train 'a novel kind of specialist'—a psychologist who would approach the new problems of childhood and education in a scientific spirit.[1] To encourage this attitude among teachers, doctors, and education officials, he founded a Child Study Association, which soon developed active branches both inside and outside London; and in this way he started what has since been called the 'child study movement'—a movement which quickly spread first to France and America and then all over the world. As part of this effort at popularization, Sully endeavoured to substitute a simple English terminology for the pretentious phrases of the academic syllabus—'developmental psychology', 'paedeutics', 'paedagogy', and the like. The term 'child guidance', now so widespread, was coined by him as a literal translation of the Greek word *παιδαγωγία*.[2] And to ensure that those who entered this new field of work should have adequate training, practical as well as theoretical, the University instituted courses in psychology leading to an Honours Degree in that subject, to be followed later by a post-graduate Diploma in various branches of applied psychology.[3]

During the first few years of the century, however, the diagnosis and certification of mentally defective children remained exclusively in the hands of the school medical officers, who, as we have seen, being trained in the study of the body rather than the mind, relied more on bodily symptoms than on the first-hand investigation of psychological disabilities. Their verdicts encountered strong criticism from teachers, parents, and education officials. "Teachers," we are told, "continually announced that children who were thus alleged to be mentally defective could be converted into normal pupils by dint of twelve or eighteen months' special coaching, and that those who were certified as 'moral defectives' often turned out to be well-behaved and law-abiding youngsters, when removed from the influence of bad

[1] Sully, J., *The Human Mind: A Textbook of Psychology,* 1892, I, pp. 27–35; II, pp. 302–10. Cf. also his *Studies in Childhood,* 1895, and *Teachers' Handbook of Psychology,* 1897.

[2] In Greece the 'paedagogue' was a kind of private tutor, who escorted the child to school and supervised his behaviour out of school. St. Paul uses the word in *Galatians,* iii. 24: "The law is a child-guide to steer us to Christ."

[3] For further details, the reader may usefully refer to an article recently published by Miss Keir (based on a memorandum prepared for a committee of the Ministry of Education), 'A History of Child Guidance', *Brit. J. Educ. Psychol.,* XXII, 1952, pp. 5–29.

homes and bad companions."[1] The education officer reported that the cost of educating a child certified and sent to a special school as mentally defective was well over three times the cost of educating a child in the ordinary elementary school, and that, in the space of ten years, the number had more than doubled.[2] Parents often protested violently against the way in which children who were merely bored by book-work or labouring from some temporary retardation were stigmatized by being committed to what was popularly known as the 'dotty school'; and the magistrate commonly sided with the parent rather than with the doctor or attendance officer.

PSYCHOLOGY UNDER THE LONDON EDUCATION AUTHORITY

In London many teachers and school inspectors had been much impressed by the work carried out on a small number of children by Sully, McDougall, and their senior students. During the first few years of the century several investigations were undertaken, and in 1909 a long article—the first to report systematic research on the subject in this country—was published. This claimed to demonstrate, on the basis of experimental results, the practical value of certain newly devised 'tests of intelligence', as methods of diagnosing inborn mental differences.[3] It was followed a year later by a symposium on the whole subject organized by the Education Section of the British Association for the Advancement of Science. A working scheme for the psychological study of individual children was drawn up; and eventually in 1913 Sir Robert Blair, the Chief Education Officer for London, persuaded the London County Council to appoint an official psychologist as a senior member of the school inspectorate. This was the first appointment of an educational psychologist in any country whatsoever.

His duties were numerous; but priority was given to the prob-

[1] Keir, *loc. cit.*, p. 14.

[2] In 1902 the figure for London was approximately 3,000; by 1912 it had risen to nearly 7,000 (see *London Statistics*, XXIV, 1913–14).

[3] Burt, C., 'Experimental Tests of General Intelligence', *Brit. J. Psychol.*, III, pp. 94–117. Cf. *Child Study*, IV, 1909, pp. 43–55, 78–100. As one of McDougall's first students, I should like to record my deep indebtedness to his help and encouragement. I must also express my gratitude for the continuous support of Sir Robert Blair for my somewhat novel ventures after I was appointed a member of his staff.

lem of "how to ascertain educationally subnormal pupils by using psychological tests and other scientific procedures", and to the prosecution of surveys and researches on the subject. His office was thus the first official 'child guidance centre'. All forms of mental deviation fell within his purview—the dull, the backward, the mentally deficient, the psychoneurotic, the delinquent, and even the supernormal. The work was carried out on a co-operative basis: teachers made reports on the individual pupils they submitted for examination, care committee visitors reported on the home conditions, parents visited the psychologist's local office with the child, and, when necessary, the medical officer was asked to make a special report on the child's physical or pathological condition. One of the most important parts of the psychologist's work was to organize special classes, or to suggest suitable teaching methods, for remediable cases of different types. Many of the children were subjected to an intensive spell of coaching or training at the psychological centre; and in this way it was discovered, for example, that practically all the cases commonly diagnosed as suffering from 'congenital alexia' (disability in reading due to inborn defect in the centre for words seen or words heard) could be converted into normal readers with six to eighteen months' special training, provided their intelligence was also normal.[1]

With the assistance of senior research students—usually teachers who had been trained in psychological techniques—surveys of the general school population were carried out from time to time, partly to discover the general distribution of intelligence and school attainments and its changes, and partly to ascertain the number of children who fell into the various categories of mental or educational subnormality and discover the commoner causes. The Council not only provided every practicable facility for such investigations, but also very generously undertook to publish the reports of the main results—a valuable aid to the development of a scientific child psychology, since at that date no private publisher would have been willing to print big volumes consisting largely of tests, tables, graphs, and half-tone illustrations. In fact, most of what we know about the frequency, nature, and causes of subnormality, and about the best

[1] Cf. Burt, C., *The Backward Child*, pp. 326 f.; Schonell, F. J., *Backwardness in the Basic Subjects*, pp. 155 f.

way of testing, detecting, and treating it, is due to these co-operative inquiries, which were continued, with scarcely a break, down to the commencement of the Second World War.

The First World War caused a partial setback; but, when it was over, elaborate plans were made for reorganizing education, particularly with a view to dealing more effectively with handicapped children. It was by now almost universally acknowledged that, in addition to the rarer pathological cases, there were a large number of perfectly curable cases consisting of children who were educationally backward without being innately defective; and various ways of providing for this large group were developed by the more progressive authorities. Special schools, special classes, special curricula, and special methods of teaching were planned.

Outside London several education departments and universities established psychological centres for child guidance similar to that set up in London. A little later, in the United States, the National Committee for Mental Hygiene began to turn its interest from adult to child psychiatry; and Mr. Harkness very generously established a 'commonwealth fund' to assist in the fight against delinquency and insanity, the seeds of which, it was believed, were planted during childhood. The first American 'demonstration clinic', partly modelled on the 'psychological clinic' established at Pennsylvania by Cattell, was opened at St. Louis in 1922. A few years afterwards, assistance was obtained to start a similar demonstration 'clinic' in London along the lines proposed in the earlier reports of the Council's psychologist.[1] The movement continued to spread; and by 1950 there were over 155 such centres or clinics set up in Great Britain. Of these the greater number were wholly or partly maintained by the local education authority; the remainder are (with few exceptions) attached to the psychological or educational departments of universities or to local hospitals.

The passing of the Education Act, 1944, greatly stimulated the interest in such work. As we have seen, among the eleven categories of 'handicapped children' which it enumerates as needing special administrative provision, it explicitly mentions the 'educationally subnormal'. Quite recently the Ministry of Education has appointed committees to deal with some of the more urgent

[1] See Burt, C., *The Young Delinquent* (Appendix II, 'The Psychological Clinic').

and moral conditions within the home and too little on the emotional and cultural.

The importance of hygienic requirements cannot of course be denied. Such children will need food suitable in quality as well as quantity, appropriate clothing, adequate opportunities for healthy exercise and sport in the fresh air. Cleanliness, I suggest, may be regarded rather as a matter of health than a matter of appearance. But, essential as these physical conditions may be, the psychological conditions are, to my mind, still more potent in their permanent effects. Education, even in the narrower sense of opportunities for intellectual development and training, is not confined to the classroom. So far as possible, the child's environment, within and beyond the walls of his residential home, should be interesting, stimulating, and informative.

It has become the fashion in certain educational and psychiatric circles to deplore the evil effects of removing children during formative years from the care and affection of their parents, and to stress the disadvantages and dangers of institution life. Such generalizations can be rather misleading. Though my home was in the country, I myself spent the greater part of my childhood at a residential school. In the earlier stages I was confined to the grounds and cloisters of what was once a mediaeval monastery; as I grew older I was allowed to spend my half-holidays roaming the London streets, visiting churches, picture-galleries, and museums; and then, during my final years, the school was moved into the midst of rural scenery, with villages and a small town nearby. This double experience was, I think, both salutary and instructive. I might almost have echoed Wordsworth's lines:

> In that enormous City's turbulent world,
> With deep devotion, Nature, did I feel
> What benefit my childhood owed to thee,
> And to those free domains of rural peace,
> Where to the sense of beauty first my heart
> Was opened.

Looking back, I am inclined to say that perhaps the later combination of rural and small-town experiences during leisure hours was intellectually no less stimulating than our earlier life in a large but somewhat bewildering metropolis. The new premises and grounds were spacious enough for us to establish our own

boys' clubs, to organize our own boyish games as well as the regular house-practices and house-matches, and to entertain ourselves during wet half-holidays in the art rooms or the laboratories; and then, when we wished, we could wander in complete solitude and privacy along the country lanes. Had I to re-plan my childhood, the only change I should be tempted to make would be to start with the country and end with the town.

No doubt it is all too easy to point to old-fashioned institutions where the lack of anything approaching family life and parental affection is a grievous drawback. But I have also seen residential schools where the home-like conditions far surpassed anything that the majority of the actual inmates could have enjoyed in the homes from which they had in fact been drawn. A freer mixture of young and old, life in a cottage rather than life in a barrack, and the presence of kindly housemasters and matrons, may do much to create, not merely a friendly, but a homely and sympathetic emotional atmosphere.

Our motto therefore must be, in the words of *The Children's Charter*: "For every child a home, and that love and security which a home provides, and for any child who must receive foster-care the nearest substitute for a home of his own." [1]

[1] Article III of *The Children's Charter* (White House Conference of 1930).

V

FACTORS OF PERSONALITY: PHYSICAL CHARACTERISTICS

DEVELOPMENTAL

DURING early years more particularly, physical growth and mental growth tend to go hand in hand. A considerable proportion—nearly 70 per cent—of those who are educationally subnormal are subnormal in bodily development as well as in mental. Several different types can be usefully distinguished.

First, there is a large number whose physical and mental retardation seems to be the double expression of an inborn or inherited lack of vitality—of a weak developmental impulse, which causes the child to grow slowly, and come early to an arrest, in nearly every direction; for these cases little can be done except to make the best of what meagre potentialities they possess.

There is a second group, commonest in the city slum, where the slow physical and mental development seems to be the result of transient illness or malnutrition during the first few years of life, including the prenatal period. With these the outlook is a little more hopeful. If the material conditions under which they live are suitably improved, such children are often able to make up for the arrears of earlier maldevelopment.

There is a third and somewhat smaller group, where the child's physical development does not keep pace with his mental development, but tends to run ahead of it. Among boys even more than girls, the possession of physical size and strength which exceed what is normal for the individual's chronological or mental level tends to produce special emotional and moral difficulties: impatient of the restrictions of an overcrowded home or a large classroom, they are apt to get out of hand, and even to become ringleaders in mischief. Here, indeed, is a common cause of maladjustment. While such children are left in their own overcrowded homes, and attend the ordinary type of urban day school, it is difficult to cope with them in the proper way. Once again the ideal plan is a residential home in the country, where

suitable outlets can readily be found for their superfluous energy and vigour.

PATHOLOGICAL

Bodily defects and minor physical ailments are extremely common among the educationally subnormal. In surveys carried out in London and Birmingham, the proportion among the dull and backward who were found to be suffering from such handicaps amounted to well over 60 per cent; among those who would formerly have been regarded as certifiably defective the figure rose to nearly 80 per cent. Bodily weakness and bodily ill-health, however, are as a rule accessory factors only, and seldom fundamental causes. They may retard a child's ultimate development by the equivalent of six to twelve months' progress; but, unless his inborn capacity is subnormal to begin with, they cannot of themselves, except in rare instances, hamper his education so much that they convert a youngster of average intelligence into a downright dullard.

In the main the physical conditions that interfere with educational progress consist not of grave or well-defined diseases, but of milder, vaguer, and more generalized conditions that sap the child's physical strength and so weaken his mental powers. The commonest is what may be loosely called malnutrition. Septic conditions of nose, throat, ears, teeth, glands, are almost as frequent. More chronic conditions, where infection, often unregarded, usually plays an active part—for instance, catarrhal, rheumatic, and dyspeptic disturbances—though trivial in themselves, may have still more serious effects. A long run of zymotic diseases—whooping cough, measles, mumps, chicken pox, diphtheria, and the like—frequently contributes to backwardness, first by keeping the child away from school during the most important years, and then by leaving his health more or less permanently enfeebled. Finally, nervous diseases, such as chorea and (much more rarely) epilepsy, are especially apt to be followed by mental deterioration and educational failure.

We may no longer hope (as was at one time supposed) that the provision of a more adequate diet and the removal of defective teeth or tonsils will in themselves do much to lessen the amount of educational backwardness. At the same time, it would be wrong to underrate the need and the value of medical

and surgical care or treatment. For the backward child, indeed, such assistance is particularly urgent. Special efforts are required, not merely because he suffers from a larger number of defects, nor even because their cure may do something to assist his efforts in the classroom, but still more because, in virtue of his own native dullness, and in virtue it may be of the dullness, poverty, and ignorance of his parents, he stands in greater need of competent external aid than those who are better off and more intelligent than he. Supplemented by suitable changes in school work, such treatment may improve the child's progress to a remarkable extent in certain isolated cases. But, as a wide experience of medical inspection and treatment has now shown, efforts along these lines cannot by themselves greatly alter the incidence of intellectual retardation.

DEFECTS OF SIGHT AND HEARING

Of the more specific defects commonly classed as physical, those that interfere most directly with school work are defects of the organs of sensation and movement. Among sensory disturbances defects of vision are the commonest, though by no means the most serious. In their effects on ordinary school work, hypermetropia and astigmatism are far more important than ordinary short sight, and much more frequently overlooked. At the earlier ages—just about the time that the child is beginning to read and write—hypermetropia is exceedingly prevalent. The hypermetropic child is at a grave disadvantage in the close work of the classroom—in poring over reading-books and in shaping letters or figures on paper, as well as in the finer kinds of needlework. By an effort of focusing, he can overcome the difficulty, at all events for a few minutes, and so it passes unnoticed. Nevertheless, he suffers from a continual strain; and the strain may issue in tired eyes, an aching head, and a vague, unanalysed discomfort which gets associated with every school lesson that puts a tax upon his sight.

Defects of hearing are rarer than defects of sight, but impose a far graver obstacle to educational progress. Sight helps us to learn from our material environment; hearing, from our social environment. Those who from early years are deaf or partially deaf to human speech are tragically isolated from what is for the child by far the most important source of knowledge. In the

schoolroom the child who is hard of hearing misses half of what the teacher says, and is badly handicapped in reading and spelling. The provision of spectacles will compensate for the commoner forms of visual defect; but hearing aids, which are far less frequently supplied to children, are by no means so successful in overcoming auditory defects.

One particular form of deafness is very liable to pass unrecognized. Just as colour-blind persons are blind to one end of the spectrum, so other persons are deaf to one end of the tonal scale, usually the upper end. Now the sounds of articulate speech are distinguished chiefly by their upper partials—shrill components whose pitch is near the range of the highest treble notes of the piano. Consequently a person who is deaf to high tones may catch the general inflections of the voice—the rise and fall of the deeper, fundamental sounds, which indicate the emotional character of a sentence (doubt, assertion, anger, surprise, and the like), but will be very poor at discriminating the nicer differences in the consonants and vowels which are essential to articulate speech: he will confuse sounds like *ee* and *oo*, *eh* and *eye*, *s* and *f* or *th*. The ordinary reader will get some notion of what such a youngster hears and fails to hear by listening to an ill-adjusted loud-speaker that intensifies the bass and cuts out the treble. A child who is seriously afflicted with this type of partial deafness naturally finds great difficulty in grasping oral instructions of whatever kind. But there are many others whose disability is so slight as to pass undetected; they can, with an effort of concentration, succeed in following ordinary speech, but are badly hampered in their attempts at learning to read and to spell. Many of the quaint mistakes heard in the classroom are perpetrated by children handicapped in this way. I call to mind the youth who described how he took a 'porkmanto' on an imaginary trip into the country, and others who reported how "Tom Sawyer took a *Turkish* delight in climbing trees" (i.e. 'sturdy delight'), or how "Churchill, right through the war, was always *up to mischief*" (i.e. 'optimistic'). The psychologist will note how each young writer's personal interests seem to determine his mode of interpreting or apperceiving what his ears have indistinctly caught.

SPEECH DEFECTS

There are two groups of motor disabilities that affect school work—speech defects and hand defects (especially left-handedness). Both types of disability may at times be symptoms of an underlying neurotic condition; but both are also found in children who are otherwise quite normal.

Defects of speech are occasionally due to physical causes, such as slight deformations of the mouth, palate, and teeth, the presence of adenoids and nasal obstruction, and (much more rarely than is popularly supposed) tongue-tie. Far more frequently they result from some underlying emotional condition, and are therefore best dealt with by psychological rather than by physical treatment, e.g. by attempts at improving not only the child's speech-habits, but also his general bodily and emotional health. The most frequent and most conspicuous are of two main kinds: first, lisping or lalling; and secondly, stammering or stuttering. The former is the commoner; but its frequency declines very rapidly after the age of 7 or 8. In older children it is often, though not always, a sign of a regression to an infantile attitude. Not infrequently it is accompanied, and perhaps caused, by weak powers of auditory discrimination. Like all speech defects, it is apt to hinder the child's early attempts at phonic analysis and so to produce backwardness in reading. Stammering and stuttering are often associated with mild anxiety-states; and much of the backwardness that is commonly attributed to the defect of speech is really due to the underlying emotional instability. All forms of speech defect are far commoner among boys than among girls.[1]

LEFT-HANDEDNESS

Perhaps no inquiry is more commonly addressed to the psychologist by teachers than the question: "How should I deal with the left-handed child?" The first thing to realize is that left-handedness may have many forms and various causes. Usually, though by no means always, it is based on an incipient inborn tendency, but it rapidly gets fixed by habit. There is an old-fashioned notion, shared by teachers and doctors, that the left-handed child should never be taught to use his right hand because

[1] In regard to the detailed treatment of these conditions, I may perhaps refer to the chapter on the subject in *The Backward Child*, pp. 360–440.

the brain centre for speech and the brain centre for the right hand are close together, and the effort will therefore precipitate a stammer. These neurological theories are quite baseless. It is not so much the mere physical effort of using the right hand, but rather the way in which that effort is imposed which causes the strain and the anxiety, and so, by disturbing, not the 'brain centres' but the child's emotional stability, occasionally induces stammering and other nervous symptoms.

As regards treatment, the important thing is to begin the right-handed training at the earliest possible age, before the left-handed habit has become firmly fixed. I suggest the following practical principles.

(i) First of all, before actually setting the child to write, give him plenty of *preliminary practice* in the use of the right hand; e.g. beating time, drawing large patterns on the blackboard, outlining letters in the air, feeling the shapes of sandpaper letters with the eyes blindfolded.

(ii) In all such preliminary exercises, and even when he begins to write, let him start with *large movements first*—movements of the arm rather than movements of the fingers. For instance, let him first trace letters a foot high in the air or on the board; then letters an inch high with crayons on brown paper; and postpone the reproduction of small letters with pencil or pen until much later.

(iii) Let the change in the use of the hands be as *unconscious* as possible. Say nothing whatever to the child about which hand should be used. Stage-manage the earlier occasions on which his hands are to be employed, so that the right hand will be adopted naturally and mechanically for the finer movements, keeping the left hand occupied with some minor task—holding the slate or steadying the paper on which he is trying to draw or write.[1] Never allow him the opportunity to take the chalk or pencil with the left, and then come down upon him for his mistake.

[1] For example, ask the child to draw a wavy line on a blackboard already covered with chalk, telling him to clean it first. The left-hander will take the duster with his left. When the board is cleaned, tell him to keep the duster, as he may want it. Since his left hand is engaged with the cloth, almost inevitably he will pick up the chalk with his right; and so, for the first time, he spontaneously uses his right hand for drawing. Presently he may discover what has happened and try to change; then promptly postpone the exercise without further comment.

(iv) *Leave the harder strokes till last.* The curling, circling, convoluted style of the regular round-hand copybook should never be put before the left-hander as a model at the start. Let him begin with big printed capitals, where there are few curves, and where most of the strokes consist of straight, downward lines. Later on he can proceed to print-script, where the horizontal strokes are few and the upward joining strokes are omitted altogether.

(v) These corrective efforts should *not be confined solely to the classroom.* Persuade those who have charge of the child to convert him to right-handed ways in games, in sport, in little domestic duties, without drawing his attention too openly to the change; and the right-handed use of the pencil and the pen will become automatically easier. One advantage of a residential school is that the routine treatment, which in a day-school may be supervised only by the teacher and only during school hours, can be extended or supported outside the school building, and so become generalized, instead of forming just another irritating incident of daily classroom life.

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VI

FACTORS OF PERSONALITY: INTELLECTUAL CHARACTERISTICS

MENTAL CONDITION

WE now reach the central part of the psychologist's task—the direct examination of the mind itself. The examination must be scientific, and carried out according to a systematic plan. Here our critics will immediately protest that any intelligent person who has had some practical experience of young children should be capable of summing up an individual boy or girl and recording his impressions: why, then, drag in the need for being 'scientific'? Let us therefore start by looking at the teacher's written report on Jimmy Brown. It is typical of many that a psychologist receives.

TEACHER'S REPORT

"Jimmy is an anaemic-looking youngster, a bit undersized, with a long thin face like a horse, a flat forehead, and a very weak chin. His work in the three R's is appalling, worse than that of many mental defectives. In handwork and things that interest him he is quite good. But most of his other faculties seem completely missing.

"He has been continually absent from school. In class he is not bad or troublesome, but has no power of attention, no memory whatever, and a very definite number-gap. His powers of judgment and reasoning are entirely wanting, though no doubt at his age we can hardly expect reasoning to have emerged. His moral sense has only just begun to develop.

"Up to now an instinctive imitation, like that of a young monkey, seems to have taken its place. In a class where the rest of the children are well behaved he follows suit; but with older boys who are up to their tricks he copies all they do. Out of school he has drifted into bad company and is all too easily led, with no will power of his own. With strangers he appears timid and shy, and talks in a husky whisper, with a sniff and a cough.

But with tiny children he is a bit of a bully. If his temper is roused, he can be as sulky and obstinate as a mule; and he always wears a scowl, even when he laughs. In the playground he rushes about in wild excitement, and everything he does is impulsive and slapdash. His written work, as his copy-book shows, is terribly careless, and his spelling hopeless. Once his confidence is gained he chatters unceasingly. Indeed, his faculties of speech are if anything over-developed; and he has a strong sensè of humour."

CRITICISMS

Now the first thing we notice is that the writer is following no methodical plan: she jots down points that have struck her, just in the order in which they occur to her mind. She is certainly observant, and aims at a style that is picturesque rather than precise. But consider how the physical particulars would appear on the boy's medical card. The doctor would have in front of him a systematic schedule of organs and functions to be examined in turn; we should know whether or not the huskiness, the sniff, and the cough were due to a chronic catarrh, whether they were suggestive of some weakness of the lungs, or merely the result of a nervous habit; we should know whether the pallor and small size were indicative of past or present malnutrition, whether the scowl was due to headache or to uncorrected visual defect,[1] and whether the rest of his bodily organs were healthy and sound. After glancing down the list we should feel that all the boy's bodily characteristics had been methodically covered; whereas in the teacher's report the various points are just tumbled out pell-mell.

And the same is true of her description of the lad's mental condition. This is set out in no systematic order: physical, emotional, moral, and intellectual characteristics are jumbled up together. Indeed, the physical features are often treated as clues to, or evidence for, the boy's mental characteristics in accordance with popular superstitions. Most of her phrases are used in a colloquial rather than a scientific sense. Jimmy, we are told, has

[1] In point of fact, the 'scowl' was the typical frown of the myopic child who needs spectacles, and not an indication, as the teacher seemed to suppose, of habitual bad temper. There was no evidence of anaemia: in using this word to describe a natural pallor, the teacher was using a scientific term in an unscientific way.

'no memory whatever' : that, of course, is not meant to be taken literally. The statement about his 'work in the three R's' does not really tell us *how* backward Jimmy is in each of the three subjects, though it leaves the impression that he is equally backward in each—which, as we shall see, is quite wrong.

Although she is quick to notice physical peculiarities, when she turns to mental or moral behaviour there is little or no endeavour to set down what has actually been observed. She jumps straight to generalizations. Until she is explicitly questioned, she makes no attempt to report actual facts—e.g. the fact that she has twice caught the boy stealing, that a year ago he was absent for nearly three months owing to infectious illnesses of his own or other members of his family, that most of his misconduct began when he was moved up to a class with older boys, and that one reason for wanting him removed was the complaint of a mother that Jimmy had actually hit and bruised a smaller child. The writer assumes, like so many other teachers, that what is needed is an abstract description of the boy's outstanding characteristics expressed by sweeping generalizations. Throughout, her aim is always to present a vivid list of personal impressions in the stock catchwords of everyday speech. And, as so often happens, the phraseology she uses consists for the most part of terms that have survived from the antiquated psychology of a previous century. The hypothesis of 'internal senses'—a 'moral sense', an 'aesthetic sense', a 'sense of humour', and so on—was the latest fashion in psychological theories two hundred years ago. The doctrine of special 'faculties' for speech, memory, and reasoning (which was supposed to develop last of all, i.e. not until puberty), and of occult 'powers' of will, attention, and the like, was a characteristic theory of the so-called 'faculty school'.[1] The notion that a weak

[1] The doctrine of 'internal senses' is still adopted by many psychiatric writers. For example, A. F. Tredgold, in his well-known textbook on *Mental Deficiency,* explicitly accepts it (p. 314). He gives no evidence whatever for this hypothesis. Nevertheless, its appearance in what has remained for so many years the leading textbook on the subject has doubtless in part accounted for its widespread use among teachers and school medical officers.

So far as intellectual characteristics are concerned, both educationists and psychiatrists still rely largely on the terminology of the old faculty psychologists: cf., for example, Henderson and Gillespie, *Textbook of Psychiatry,* pp. 95 f. A few of the most recent (e.g. Barton-Hall, *Psychiatric Examination of the School Child*) are now tending to adopt the terminology of the psychological factorists.

will is betrayed by a weak chin, and that weak reasoning powers are revealed by a flat or sloping forehead, is a relic of the teaching of the nineteenth-century phrenologists.

Today such theories are as obsolete as the old medical explanations that attributed malaria to 'bad air' (*mala aria*), influenza to some climatic 'influence', and lunacy to the 'lunar cycle'. Yet the out-of-date nomenclature has stubbornly survived, and still provides the current vocabulary in terms of which biographies, psychiatric case-histories, and reports of committees appointed by the Ministry of Education, are commonly compiled. The same terminology has been freely used in several of the schemes and schedules recently published for school record cards: indeed, it is surprising to observe how often quite competent educationists, when they frame outlines for case-studies, are content to improvise a miscellaneous list of traits, couched in terms that are drawn, not from accredited psychological authorities, but from popular speech and the journalist's jargon, regardless of whether the notions which those terms imply have stood up to the test of scientific research.

Something far more scientific is badly needed; and the first task of those who have applied themselves to establishing a basis for objective studies of personality has been to elaborate a sound theory of mental characteristics, and a well-defined system of concepts in terms of which they can be expressed, compared, and measured.

THE STRUCTURE OF THE MIND

Accordingly, just as the doctor, before he attempts to report on a patient's symptoms, must first be familiar with the structure of the body and with the latest views on its functions, so the teacher, before he reports on the mental characteristics of a given school child, ought first to be familiar with the structure of the mind and the way its various capacities and tendencies develop and operate. Moreover, as the body of every child has a similar construction, so too in each one the mind is built up on the same general plan. Our understanding of that plan has rapidly increased during the last thirty or forty years. This is due partly to an increasing knowledge of the central nervous system and particularly of the cerebral cortex, but mainly to a combination of experimental and statistical methods technically known as factor analysis. This mode of approaching the study of individual differences was first

adumbrated, as we have already seen, by Francis Galton, and was developed on the statistical side by Karl Pearson and his various British followers, and on the experimental side by a large number of research workers in the field of general and applied psychology, first in Great Britain, and later in France, Germany, and America.

Herbert Spencer maintained that mental capacity, like all other biological characteristics, evolves by a kind of progressive differentiation. The earliest phases of mental life, both in the race and in the individual, exhibit a general cognitive activity, which, so he imagined, differentiates stage by stage into a system of more specialized abilities, the lowlier and simpler forms developing first, and the higher and more complex later on. As a result, in the full-grown representative of the highest species of all—in man—the mind, like the central nervous system or brain, appears to be constructed on what he called a 'hierarchical' basis. The term suggests that its internal scheme or plan might be compared with that of an organized body such as an army, a church, or a constitutional government. There are, first of all, a few highly general 'factors' with a wide and comprehensive range, each concerned with some distinctive aspect of mental life; each of these includes narrower 'factors' whose scope is more limited; each of the latter in their turn can be subdivided into still narrower 'factors', and so on. For our purpose it will perhaps be simplest to regard the 'factors' as more or less general *principles of classification*; if we speak of them as representing 'abilities' or 'instincts', such phrases must be regarded as the expression of tentative hypotheses, based on supplementary, and not always conclusive, evidence.

To begin with, we may distinguish between what the older psychologists called the *intellectual* and the *emotional* aspects, or what in modern terminology are called the 'cognitive' and the 'affective' or 'conative' aspects respectively. None of these terms is altogether satisfactory. Under the former aspect, for example, we have to include what the plain man would call 'practical activities' as well as 'intellectual' activities in the narrower sense. As Professor Piaget has indicated in his recent book,[1] the distinction is rather between those characteristics of the mind

[1] Piaget, J., *The Psychology of Intelligence*, 1950, pp. 4 f., 150 f. (section headed 'The Hierarchy of Operations').

which provide, as it were, the guiding or steering mechanisms, and those characteristics which supply the energy or power. We might perhaps call them the 'directive' and the 'dynamic' aspects respectively. However, with this preliminary explanation it will be convenient to use the traditional terms, and speak of them as the 'intellectual' and 'emotional' aspects.

Next, on both the intellectual and on the emotional side, we can distinguish between two main levels—what we may loosely call the *innate* tendencies and the *acquired* tendencies, that is, first the capacities or propensities determined from birth or fertilization by the child's genetic constitution, and secondly the actual skill, knowledge, habits, interests, and the like, that have been gradually developed or accumulated as a result of the child's personal experience.

So far, therefore, we can picture the mind as a house of two storeys, with a front aspect and a back. The front aspect corresponds to the intellectual characteristics, and the back to the emotional tendencies, which are, as a rule, less open to view. The ground floor will serve to represent the innate tendencies, and the upper storey the knowledge and the habits that are built up during life. The whole may be conceived as resting on the deeper, hidden foundations of unconscious life. The picture is a little crude and schematic. And in point of fact all the distinctions I have drawn are highly abstract. Every action includes both an intellectual and an emotional aspect; and every form of behaviour is the mixed resultant of both inborn and acquired proclivities.

But thirdly, we may also distinguish between those tendencies that are relatively *general* and those that are more or less *specialized* (such as the various forms of perception, memory, imagination, and the like). Here, however, we must avoid repeating the simple twofold mode of division and contrasting too sharply what is 'general' on the one hand with what is 'specific' on the other, as so many books on education continue to do. Rather, the organization now begins to resemble the sequences shown by nests of 'Chinese boxes', not a mere partitioning of every large room into two. The terms 'general' and 'specific' are relative, like the terms 'genus' and 'species' in traditional logic: what we find is a series of factors of increasing specialization, not a sharp antithesis between a single factor, supreme at the head

of the hierarchy, and all the rest lumped together as a miscellaneous set of individual factors with no other relations.[1]

Let us then briefly take in turn each of the more important 'key qualities' indicated by this classification.

GENERAL INTELLIGENCE

The first and in many ways the most important of all is that particular factor which may be defined as *innate, general, cognitive capacity.* This factor is so fundamental that it has received a special name. Galton usually spoke of it as 'general ability', but sometimes as 'natural ability'. Other British writers, however, adopted Spencer's word and called it 'intelligence'; and Binet, who followed Spencer's French disciples, Taine and Ribot, eventually established the Spencerian term.[2]

But it is essential to remember that, when a psychologist speaks of testing a child's 'intelligence' or computing his 'intelligence quotient', the word 'intelligence' is being used not in a popular but in a technical sense. It denotes, first of all, a quality that is intellectual and not emotional or moral: in measuring it we

[1] The attempt to simplify the theory of human abilities by recognizing two kinds of factor only—the 'general' and the 'specific'—gave rise to what is known as 'Spearman's two-factor theory'. Though a few writers of elementary educational textbooks appear to regard it as still the orthodox view of mental structure, no psychologist of any authority now accepts it. Indeed, it was nearly always confined to Spearman and his own immediate disciples.

[2] Recent writers, who seem unfamiliar with the history both of the term and of the concept, have introduced a good deal of confusion into their discussions about 'the nature of intelligence'. They suppose that there is some definite thing for which 'intelligence' is, as it were, the proper name, and that the real difficulty is to describe what precisely that thing is. Thus, when Dr. Blackburn and Mr. Kenneth Richmond tell us that "psychologists are not yet agreed about the real nature of intelligence", because one American professor says "it is ability to learn" and another says "it is ability to think in terms of abstract ideas", they are confusing a difference about the use of a word with a difference about the facts: it is as though they came across the word 'power' in a textbook on dynamics, and tried to think out what 'power' really was regardless of the fact that for the physicist it is just a label for an expression in an equation. All such arguments reverse the true order of thought. What happened was that, on various grounds, psychologists came more and more to agree that there was some common component underlying all cognitive activities and that differences in this common component were largely inborn. Statistical work fully confirmed this notion of an 'inborn, general cognitive component'. They then looked round for a convenient single word to designate this concept. 'Intelligence' (which had almost the same meaning with the older Latin writers who introduced and popularized the word) seemed by far the most appropriate.

try to rule out the effects of the child's zeal, interest, industry, or the like. Secondly, it denotes a general capacity, a capacity that enters into everything the child says or does or thinks; any want of 'intelligence' will therefore be revealed to some degree in almost all that he attempts; a weakness in some limited or specialized ability—for example, in the ability to speak or to read, to learn or to calculate—is of itself by no means a sign of defective intelligence. Thirdly, intelligence is by definition an innate capacity: hence a lack of it is not necessarily proved by a lack of educational knowledge or skill. The teacher who writes as though Jimmy's 'appalling work in the three R's' was in itself convincing evidence of mental deficiency is confusing poverty of acquired attainments with poverty of inborn ability.[1]

Popular writers are fond of criticizing psychologists for declaring that this or that child's progress and conduct are limited by his innate allowance of mental ability. They explain that, with better training at home or in school, the backward child might have been taught to behave in a more intelligent fashion. But in such an argument they are interpreting intelligence in the popular rather than the technical sense.[2] If, however, psychologists have agreed to use the word 'intelligence' as a convenient name for an *inborn* component in behaviour, then it becomes nonsensical to contend that, by adding knowledge or skill, or by broadening the child's experience, this inborn component can itself be changed: what we increase and accumulate are obviously components that are *not* inborn.

No doubt existing tests of intelligence, particularly when not very skilfully selected or applied, may be in some measure influenced by many other things besides sheer inborn capacity. The results may be affected by the child's mood and emotional attitude, or the knowledge or skill he may have gained at school or

[1] The various lines of evidence demonstrating the existence of general intelligence as thus defined are summarized in the paper on 'Ability and Income', *Brit. J. Educ. Psychol.*, XIII, 1943, pp. 88–92; cf. also 'Intelligence and Fertility', *Eugenics Papers* No. 2, Cassell & Co., 1946, pp. 35–43 and references.

[2] It was largely to avoid this kind of confusion that Spearman preferred to term the general factor not 'intelligence' but *g*. However, to label every mental quality with an arbitrary letter instead of some concrete name which will serve as a mnemonic would be most bewildering. What would an education officer or a magistrate make of such technicalities? After all, every science borrows words from popular speech like 'force', 'energy', 'power', 'salt', 'gas', 'fat', and redefines them in a technical fashion.

elsewhere. But this merely proves that our tests of intelligence, like all other measuring instruments, are never absolutely perfect, and, however carefully constructed in themselves, require some degree of training and experience in the user before they can be successfully applied or interpreted.

In the hands of a trained psychologist, who knows what particular tests to choose for this case or for that, and who is aware of the lurking pitfalls that await all efforts at mental testing and understands how to avoid them, intelligence tests may prove a most valuable device. Since teachers are trained and practised in the daily examination of children in the classroom, they should be competent to administer such tests and draw justifiable conclusions. Nevertheless, though it looks as easy as putting a thermometer under a patient's tongue or counting his pulse with an eye on the second-hand of a watch, the whole process is apt to be quite as precarious as endeavouring to diagnose a patient's condition from his temperature or his pulse-rate. There is no single test that can be recommended for all cases, and no test that is wholly foolproof. More particularly the teacher should be warned not to take over some American version—the Terman-Merrill or the Wechsler-Bellevue—and use American questions and American standards for English children, as though the wording and the standards could be uniform all the world over.[1]

DISTRIBUTION OF INTELLIGENCE

To interpret such tests in any particular case it is necessary to be familiar with the results obtained from the general population. The innate differences revealed by intelligence tests are far wider than is commonly assumed. In a group of 1,000 children aged 10 by the calendar, the dullest will have a mental age lower than that of an average child of 5, and the brightest a mental age higher than that of an average youth of 15. With the average boy or girl, mental age increases proportionately with the increase in chronological age. Hence, as everyone knows, it has become customary to measure the child's innate intelligence in terms of the ratio between the two—his mental ratio or intelligence

[1] For the Terman-Merrill scale revised age-assignments, based on the work of numerous teachers and educationists, and suitable for children in this country, will be found in the *Handbook of Tests for Use in Schools,* pp. 42–3. A similar revision of the Wechsler test is being prepared.

quotient, as it is called. Such a 'quotient', when assessed by a competent psychologist, is fairly constant throughout the child's school life.

In terms of this quotient three convenient borderlines have been laid down. A child with an intelligence quotient of 50 only (that is, a child who at 10 will have the mental age of an average child of only 5) is commonly described as ineducable. When he is fully grown, his level will be no more than that of a child of about 7 or 8. It will therefore be impossible to educate him in the ordinary sense of that word. Children whose intelligence quotients lie between 50 and 70 per cent correspond to the group that was formerly termed 'feebleminded'; these were the children that we used to certify and send to special schools. Those whose intelligence lies between 70 and 85 per cent are technically termed 'dull'. And together these last two groups make up the bulk of the intellectually subnormal.

In most mixed educational areas about one child per thousand is ineducable, about $1\frac{1}{2}$ per cent are feebleminded, and about 10 or 11 per cent are merely dull. The figures, however, vary greatly from one district to another. In the city slums and in certain rural areas the proportions are nearly twice as large as the averages I have just given.

THE INTELLIGENCE OF THE BACKWARD CHILD

Careful investigations show that, of all the causes of educational subnormality, the commonest and the most serious is a weakness in general intelligence. Since by definition this capacity is innate, such cases are bound to be backward for life. If we can trust the information secured during the surveys already described, in 15 per cent of the backward cases no other contributory factor was discoverable: an inborn general incapacity, often inherited from one or both parents, seemed to be the sole and sufficient cause. However, in the majority of the instances the situation is undoubtedly far more complex. Some extraneous influence, or set of influences—physical ill-health, emotional instability, poverty at home (with all its attendant consequences), or lack of genuine interest—co-operate with this pre-existing weakness of the mind; and the joint effect is that the child's progress becomes doubly retarded. Such a combination of external and internal factors was found in more than one-half of

the backward pupils that I examined. However, in about one-third of the cases no serious lack of innate ability was found : this smaller group is commonly referred to as constituting the '*merely* backward'.

Where retardation is due wholly or mainly to sheer innate dullness, the teacher should realize that it is not only waste of time, but positively harmful to press the child on in the hope of raising his attainments to the normal. Capacity must limit content; and if a child is born with a low measure of innate capacity, it will be as foolish for the teacher to try to instil into him a normal amount of knowledge and skill as it would be to try to pour twelve ounces of medicine into an eight-ounce bottle. On the other hand, where the child's intelligence proves to be nearly normal, the outlook is more promising. It is, therefore, imperative that the merely 'backward' should not be confused with the genuinely 'dull'.

How does Jimmy compare when tested against such a scale? With the London revision of the Binet scale, he passes in all the tests of pure intelligence up to and including those for a child who has just turned 12. In fact, his mental age is $12\frac{2}{12}$ years. His age by the calendar is $11\frac{4}{12}$. His intelligence quotient is therefore 107. This result is not due to any coaching, as has been suggested [1]; and it would be impossible to account for it by eager-

[1] It has always been recognized that most intelligence tests, if not all, can be influenced in a greater or a lesser degree by deliberate coaching. With group tests, set as a kind of written examination to large numbers of children in class, many of the more familiar types of problem can easily be made the subject of prior practice, and the pupils' performances improved. A recent research, published by Professor Vernon in the *Times Educational Supplement,* has drawn renewed attention to this possibility, and has provoked a good deal of not very well-informed criticism and correspondence. Part of the trouble arises from the fact that the construction and administration of such tests look so easy. Hence many of the tests employed have been drawn up by teachers or examiners who have had no psychological training whatever and merely copy the familiar types (see p. 80). With these, the pupil who has been given similar tests before is naturally able to score slightly higher marks, though my own experience suggests that the amount of improvement thus achieved is, as a rule, greatly overestimated. A competent psychologist should always be able to defeat or detect the effects of unfair coaching. He can invent new problems for which any existing coaching is bound to be of little avail; if he also includes tests for which coaching is possible or likely, the children who have and have not been coached will be readily distinguishable. And there are many less obvious and more subtle ways of achieving this which I will not mention. Moreover, it is usually the

ness, keenness, home or school knowledge, or even sheer good luck. We are therefore forced to conclude that, in spite of the teacher's impression (based mainly on the boy's work in the more mechanical and formal subjects, not on his capabilities in 'things that interest him'), Jimmy is by no means mentally deficient. He is not even dull. If anything, he is a little above the general average. How is it, then, that he seems so backward in school?

SPECIAL ABILITIES AND DISABILITIES

Jimmy's case is in no way exceptional. Again and again a pupil who appears exceedingly stupid when judged by his work in the classroom turns out, when psychologically tested, to be normal or even bright. What, then, can be the cause of such a child's failure to achieve normal progress? If his intelligence is at least equal to the average, if his health, his home circumstances, and the instruction he gets at school are in no way faulty or deficient, then other factors must be sought for. The trouble may spring either from some more specialized limitation in the child's cognitive aptitudes, or else from some handicap on the emotional and moral side. Which precisely it may be in any individual case, only a further investigation will disclose.

The next step then must obviously be to test or examine the child's special abilities. How are we to proceed? Here again our knowledge of the hierarchical structure of the mind will provide us with a fairly systematic plan.

Factorial studies suggest that we may begin by distinguishing, quite broadly, two main cognitive levels: to avoid the use of unfamiliar technical terms let us call the lower the level of *practical* processes and the upper the level of *reflective* processes. This is a distinction that is familiar to all of us from everyday observation. The contrast between the 'perceptive' or 'practical' type of mind and the 'reflective' or 'intellectual' type is a commonplace of history, biography, and fiction; and it plays an important part in the individual 'character-readings' offered by the phrenologists.[1] Although 'type psychology' was at one time widely

brighter children—the potential scholarship winners—who are most easily coached: with the dull, coaching is far less effective. It is to the interest of every teacher to assist the psychologist, not to help the child to earn a credit which he does not deserve and which he will not in the end fulfil. (Cf. Burt, 'Effects of Coaching', *Educ. Rev.*, 1954, pp. 126 f.)

[1] Bain distinguished a 'mental' and a 'motor' type. Binet, an 'objective or practical' and a 'subjective or reflective' type. Allport proposes to distinguish

popularized by phrenologists and other adherents of the faculty school, it has been severely criticized by academic psychologists. Hence it is encouraging to note that these two particular 'types' (or rather 'tendencies') appear to have been fully verified by recent experimental and statistical research. The distinction is also recognized in the proposed methods of allocating children at the age of 11 to technical schools and to grammar schools respectively, though a good many educationists are doubtful whether it can always be established at this early age.

Since school work is largely intellectual work (in this narrower sense), the child whose abilities lie rather in a practical than in an intellectual direction is always liable to be underestimated by the teacher. Jimmy, as we have seen, was such a case; and for this reason it is important that any scale of intelligence tests should include practical tests of a so-called 'performance' type, and not consist solely of verbal tests, like those which bulk so largely in the Binet scale and in most of the written 'group tests'. And certainly we must avoid supposing that nature has endowed us with a 'practical' faculty and an 'intellectual' faculty, each located in some particular 'organ' or 'centre' of the brain: even the phrenologists treated these two terms as class-names for groups of abilities rather than as constituting specialized and separate faculties, in and by themselves.[1]

two types on the basis of 'mechanical or practical intelligence' and 'abstract or verbal intelligence' (*Personality*, 1938, pp. 406–7, and refs.). A similar contrast was drawn over a hundred years ago by the phrenologists Spurzheim and Gall (cf. Burt, *The Measurement of Mental Capacities*, pp. 10, 31, and refs.). As Dr. Moursy observes, the contrast is rather suggestive of the old distinction between 'afferent' and 'efferent' processes, or, as some have termed them, 'receptive' and 'executive'—a difference of aspect rather than of level. But, as he goes on to point out, the two views can readily be reconciled (cf. Moursy, E. M., 'The Hierarchical Organization of Cognitive Levels', *Brit. J. Stat. Psychol.*, V, 1952, pp. 151–80).

The antithesis is not unlike the familiar opposition between the extravert and the introvert in discussions of temperamental characteristics. Here, however, we are concerned with *abilities* for this or that type of activity, not with emotional *interests*.

[1] Dr. Hollander states that the 'perceptive centres' are situated in the lower region of the frontal lobe of the brain (at or just above the level of the eyebrows), and the 'reflective centres' in the higher region (upper part of the forehead); and prints numerous portraits to illustrate these diagnostic clues (*Scientific Phrenology*, pp. 68 f.). The teacher's report on Jimmy has apparently been influenced by this well-known theory. A few years before the war a northern local education authority invited a phrenologist to assist in the award of scholarships, and his classification of pupils suitable for technical

Each of these two broader levels may be subdivided into two, so that we are led to recognize four distinguishable levels in all, namely: (i) the level of simple sensory and simple motor processes; (ii) the level of complex perceptual and complex motor processes; (iii) the associative or reproductive level (imagery, mechanical memory, and habit formation); and finally (iv) the relational level, including generalization by concepts (abstraction), generalization by propositions (judgment), and rational inference (reasoning).

On each of these levels there are a number of more specialized abilities which require to be tested in turn; and for most of them fairly efficient tests are available. However, such testing is a highly technical task, usually needing special apparatus; and, save for the simplest processes, none but a psychological expert with laboratory facilities is in a position to carry it out. (i) On the sensory level, for example, we should begin by testing the child's vision, hearing, touch, and kinaesthetic discrimination, and then proceed to measure the strength, speed, and accuracy of his elementary movements. Since such capacities so obviously depend on physical structures—the eye, the ear, the muscles, and the relevant nerves—they are not usually thought of as part of the psychological examination; but, particularly with the young child, accurate testing is so difficult that the ordinary school doctor is often less able to reach a trustworthy assessment than a teacher with a psychological training or a psychologist who has been trained to deal with young children.[1] (ii) On the perceptual level it is often desirable to examine the child's ability to perceive complex visual or auditory patterns. Weakness in these respects may be directly responsible for disability in reading or spelling. (iii) On the associative level there are tests for mechanical memory,

schools and for secondary (i.e. grammar) schools was based on an inspection of these features in their skulls.

The distinction between the perceptive or practical processes and the reflective or intellectual is not unlike the neurological distinction between 'projection-areas' (sensory, motor, psychosensory, and psychomotor) and 'association areas' in the cortex. But it need hardly be added that this gives not the smallest ground for deducing so-called 'types' from discernible differences in shape of skull or structure of brain.

[1] In the United States the testing of vision and hearing is in the hands of the teachers. However, in this country it generally forms part of the school medical inspection. Hence, for convenience, I have dealt with it in the preceding chapter, where I discussed those physical conditions that are commonly regarded as falling within the sphere of the doctor.

motor learning, imagery of various types, and the ability to deal with verbal, numerical, and visuo-spatial contents. (iv) On the highest level of all, still more elaborate tests exist for productive or creative imagination, artistic appreciation, and the different forms of logical reasoning. With the backward child the testing or assessment of all these various capacities has a double value. The psychologist's purpose is not merely to discover those particular disabilities which may have contributed towards the child's backwardness, but—what is equally important—to determine the existence of any special aptitudes or talents which may be developed and exploited, and so, in some measure, compensate for weaknesses in other directions.

Apart from formal testing, a good deal can be learned if the teacher notices the way in which the child attacks the various tasks during ordinary lessons or during ordinary routine testing, and observes where more particularly he is liable to go wrong and what particular methods he is apt to hit on spontaneously. Sometimes, for example, a child may succeed in every problem that turns upon sheer reasoning, but fail with the easiest tasks that depend on memory; or again in his reading or dictation, he may make repeated errors, all of the same general type, which from their very nature reveal some peculiar difficulty in analysing sounds or in associating visual symbols.

Some of the commonest cases to be met with among children whose intelligence proves to be normal are cases of special disability in just one fundamental subject of the curriculum. Specific backwardness in reading is common among the younger boys; specific backwardness in arithmetic among the older girls. If a child's reading is seriously backward, that will hamper his work at school on almost every side. Spelling and composition depend largely on understanding words in print; and hence in these subjects the backward reader very quickly drops behind. Geography, history, and the like, depend upon an ability to read the classroom manuals. Arithmetic is affected, because, in all but the most mechanical calculations, the pupil must grasp the wording of the problems before he can work them out. Indeed, it may often be observed that, when a sum is put to such a child orally, he can do it perfectly well: the mere manipulation of the figures does not bother him in the least; yet the same sum written on the blackboard, or encountered in a printed textbook, defeats him,

because he is quite unable to extract the requisite information from the words before his eyes.

With other children the situation is reversed. A youngster may be fully up to the average in reading, spelling, and composition, but exhibit some special disability in manipulating numbers. In many schools, pupils are still promoted mainly according to their attainments in arithmetic, for arithmetic is an easy subject to grade and mark. Not infrequently, when a child is obviously unable to attack the arithmetic syllabus of an upper standard, the headmaster argues that he will be a drag on the higher class, and relegates him to a lower. As a consequence, the child fails to make the progress of which he is really capable in the rest of the curriculum, and consequently appears backward all round.

With all such cases an intensive study should always be made of each child's peculiar difficulties. In the past, many medical writers have declared that backwardness in reading, spelling, or arithmetic must be due to a congenital defect in a specific faculty which they suppose to be located in some area of the brain. For example, children who are exceptionally backward in reading have been diagnosed as 'congenitally word-blind'. Everyone knows that, after an apoplectic stroke caused by the bursting of a blood vessel in the brain, an elderly patient may be completely deprived of speech : a post-mortem examination may then show that a portion of the brain, commonly described as the 'speech-centre', has been damaged or destroyed by the lesion. In certain cases the patient, on recovering from the stroke, proves to be quite unable to read : he can see the black marks on the printed page before him, but he views them as an unlettered Englishman might view a page of Hebrew or Greek : the marks mean nothing to him. He is then said to be 'word-blind'. By analogy many doctors have argued that, owing to a congenital non-development of the supposed 'word-centres', certain children may be born word-blind and others born word-deaf.[1] In point of fact,

[1] See, for a fuller account of this view, James Kerr, *Fundamentals of School Health,* pp. 612–15, and Barton-Hall, *The Psychiatric Examination of the School Child,* pp. 105–10. It may be added that so competent a neurologist as Sir Charles Sherrington entirely rejected this notion. A more careful investigation of cases commonly diagnosed as suffering from 'congenital visual' (or 'auditory') 'imperception' shows that the majority are not interested in, or not accustomed to, making a perceptual analysis, not that they are incapable of it.

however, there is no neurological evidence whatever in support of this view: no brain-defect in such children has ever been discovered post mortem. Moreover, several psychologists, both in this country and America, have reported that all the cases so diagnosed, which they have been able to study and train, have responded favourably to an intelligent effort to teach them to read by methods specially adapted to their particular needs. In short, as Schonell observes, "much harm has been done by such cerebral theories".[1]

No doubt there are certain innate peculiarities which make it far more difficult for some children to learn to read than others; but to explain those peculiarities in terms of special 'word-centres' is far too crude and naïve a hypothesis. Perhaps the commonest cause of backwardness in reading is the attempt on the part of the teacher to use a method which is unsuited to the peculiarities of this or that particular child. This can best be illustrated if I cite two contrasted cases which I have described more fully elsewhere.[2]

"Arthur B. is a boy of 12½ with a mental age of 11½. In mechanical arithmetic he is up to the work of Standard V, that is, of an average child of 11; in reading and spelling he is barely equal to an average child of 7. His mistakes show a frequent confusion between words similar in form but different in sound: he writes 'point' for 'paint', 'paint' for 'print', and 'beard' and 'bead' for 'bread'. To spell out the letters, or to hear the names of the sounds, does not aid him in the least. He seems to be guessing words from their dominant letters or from the shape of the words as a whole. With regular words like 'rapid' or 'habit' he often fails completely; but many irregular words like 'journey' and 'tongue' he can read correctly. He can even manage a few long polysyllables like 'autobiography' and 'encyclopaedia'.

"Special tests show that he is rather poor at auditory discrimination, and exceedingly weak in auditory memory. He is, in fact, a visualizer, eye-minded rather than ear-minded, and this explains both his difficulties and his successes. The long words he evidently remembers as visible wholes: he says he has often seen them as titles on the backs of well-known books. With other words—'bicycle', for example—the alternation of tall letters and short

[1] *Backwardness in the Basic Subjects*, p. 152; the reader may usefully refer to the whole of Schonell's chapter on disability in reading.

[2] *The Subnormal Mind*, pp. 140–1.

letters sometimes makes a picture that he can identify at a glance; 'print' and 'paint' he confuses, because the visual form that they offer to the eye is almost identical, although the pronunciation is utterly different.

"The boy clearly possesses a bad memory for sounds, and yet has been taught by the phonic method. Naturally the method failed. In other respects his mechanical memory is good; and, by exploiting his power of recognizing and remembering word-forms, and by drilling him with a selected spelling-list, his teacher was able in the course of eighteen months to bring him nearly to the normal level."

"Charlie D. is another boy of about the same age and intellectual level. Long words like 'perambulating' and 'terminology' he can read quite correctly, provided their construction is regular; but he tends to spell them out syllable by syllable. He stumbles over the 7-year-old word 'journey'; and 'tongue' he pronounces 'ton-gue'. In dictation he writes 'pickser' for 'picture' and 'plesent' for 'pleasant'; and, looking back over an old exercise-book that he had written three years before, I found a story that started 'I was hte god no hte tadle'."

Charlie's case is almost the opposite of Arthur's. The sentence just quoted contains five reversals. The child had intended to write "I saw the dog on the table". The word 'god' does not look like 'dog' the general picture that it presents to the eye is quite different. But the component sounds are exactly the same. He has remembered the sounds and the symbols for the sounds, but put them down in an incorrect order. Similarly, he confuses *b* and *d*, which have practically the same shape differently turned. 'Pickser' he spells almost exactly as in his own cockney accent he pronounces it.

The psychologist's tests quickly show that Charlie is an audile with very weak powers of visualization. Unfortunately he has been taught by the look-and-say method. Give him a phonic method which will exploit his auditory imagery, and he will soon surmount the difficulties.

In general, however, with those who are dull as well as backward, some form of the word-whole method proves more successful than a purely phonic procedure. Their minds are better at synthetic processes than at analytic. Many of them grasp things most readily through movement—the movements of the lips as in

muttered speech, or the movements of the hands as in writing; they are greatly helped by practical exercises, such as tracing words in the air, or spelling them half aloud to themselves along old-fashioned alphabetic lines. But no short cut exists that can be applied automatically to all such cases. The methods must be adapted to each individual, and can only be discovered by repeated experiment and trial.

Differences in mental imagery are important in other subjects besides reading and spelling: in the more extreme cases they may influence the child's whole understanding of what he sees and hears. The more conspicuous may be classified as follows:

I. Thing thinkers (concrete type):
   a Visualizers. *b* Audiles. *c* Motiles.
II. Word thinkers (verbal type):
   a Visualizers. *b* Audiles. *c* Motiles: (i) articulatory, (ii) graphic.

Most backward children, as the result of factor analysis plainly shows, belong to the concrete type: during earlier years motor imagery predominates: later, visual imagery becomes increasingly vivid; and, after the age of 6 or 7, both boys and girls live predominantly in a pictorial world. The cinema and the popularity of television seem to enhance this natural tendency. Towards the age of 12 or 13 a few change over to a verbal type, usually motile and articulatory. Their reflections tend to take the form of silent soliloquies; and begin, like the Lord Chancellor in *Iolanthe*, "says I to myself, says I" Audiles are much rarer. I myself, however, am ear-minded rather than eye-minded: I can enjoy a mental concert at my fireside by simply opening an orchestral score; and, if I pick up a book by my Oxford tutor who had an impediment in his speech, it takes me ten minutes to read each page, because I hear his voice stuttering at every *p* and *t*. Every teacher should take pains to discover to which type he belongs: if he thinks predominantly in words, and his class thinks predominantly in pictures, neither will readily understand the other.

Of all the special mental disabilities that hamper educational progress the most frequent is a weakness in what may be termed long-distance mechanical memory. Much of the regular classroom work demands a capacity for memorizing mechanical

associations between arbitrary or abstract symbols, such as figures, letters, and sounds, and retaining these automatic memories for a long period of time. Tested for short distance memory the child may appear to learn the multiplication table quite quickly, and even to remember the numbers well enough at the next lesson. Yet in a week what he knew so well has faded like a photographic snapshot that has never been fixed. Education is a cumulative process; and it is essential that the child should preserve whatever he has learnt, not for a few hours only, but for the rest of his school life. It is more particularly in the groundwork of the formal lessons—in reading, spelling, and arithmetic—that the effects of a poor memory are most commonly seen.

Although we cannot directly improve a child's weak memory by exercise or training, we can at least assist him to make a more efficient use of what little memory he has. The teacher therefore, who has to deal with a pupil whose intelligence is nearly normal but whose memory is weak, should familiarize himself with the various devices and practical rules suggested by experimental work in the laboratory. I may perhaps briefly summarize those that have proved most effective.

(i) Begin by making whatever has to be memorized as interesting and as intelligible as possible. Intelligent learning is six times as quick, and ten times as lasting, as mere parrot-like repetition.

(ii) Memory depends essentially upon what is commonly called the association of ideas. Hence associations should be multiplied. Devise as many different cues and reminders as possible for prompting subsequent recall.

(iii) Help the child to appreciate the precise nature of those associations as far as he can. Get him to understand why or how the things are related; and so let him rely less on arbitrary links and more on logical connections.

(iv) If there are no very obvious rational bonds, do not scruple to invent fanciful connections or to use artificial mnemonics.

(v) It is better to learn in wholes rather than in sections, e.g. two or three verses at a time instead of single lines. The length of the whole should be suited to the child's span of attention.

(vi) In learning by this method let the child observe first the general scheme or arrangement of the whole. If the material is extensive, help him to get the gist of it to begin with, in a more

or less systematic outline, either mentally or sketched out on paper.

(vii) Exploit whatever form of imagery is most vivid for each particular child. Let the visualizer construct mental pictures. Let the audile make use of rhythms, rhymes, sound-patterns, and 'alliteration's artful aid'. Let the motor type use movement: reading aloud is better than silent reading; often writing is better still.

(viii) Mild emotion, particularly pleasurable emotion, tends to stamp in whatever it accompanies. Excessive emotion, particularly painful emotion, distracts. Learning, therefore, should be a gently exciting business, satisfying and full of interest, not a dreary and obnoxious task.

(ix) Provide the child with a natural motive for learning whatever he has to learn, and see that he concentrates keenly during the learning spell itself. The will to learn is half the battle. Always therefore seek out some suitable incentive.

(x) Between the forgetful pupil and the pupil whose memory is strong the main difference is simply that the latter can get a thing by heart after a very few rehearsals, while the former requires to go over the same thing again and again. With the dull, therefore, the chief principle will be to introduce plenty of extra drill on whatever has to be learnt; only the drill must never become tedious—short, sharp, oft-repeated efforts will be the most effective.

(xi) After intensive application let the child's mind rest a while before turning to a new task. What he has just learnt will then go on quietly consolidating, just as plaster sets best in an undisturbed mould.

(xii) Let his later repetitions be active attempts at reproduction with a minimum of aid. But never test him when he is likely to go wrong, else you may only succeed in driving home his errors.

(xiii) Employ revision far more often than you would with the ordinary child. It is a good plan to spread out the repetitions as much as possible, gradually increasing the intervals. Let the child try to reproduce what he has learnt straight away, then after half an hour, then after twenty-four hours, then after two days, a week, a month, and so on.

ACQUIRED ATTAINMENTS

In dealing with the cognitive aspects of the mind, I have followed the logical order and have discussed first of all those types of disability or defect which are in the main innate, i.e. due to inherent peculiarities present from birth. Accordingly we should next turn to consider the measurement of attainments acquired after birth. However, in examining any particular child, the logical order may not always be the best order. Indeed, for practical purposes it is more natural to start by discovering whether or not the child is backward at his work, and, if so, in what subjects and to what degree: having ascertained this by applying educational tests, we can then apply our psychological tests in the hope of discovering the explanation of the backwardness so found.

For children of school age there are recognized educational tests, fully standardized, for almost every subject of the curriculum. These should be systematically applied in the case of every backward child. To describe them in any detail would be a lengthy task; and here it will be sufficient to refer the reader to what I have said elsewhere.[1]

TESTS

The use of tests has become exceedingly popular during the last twenty or thirty years. It is therefore necessary to repeat one or two notes of warning, which have often been sounded but are still too frequently ignored. To begin with, it must never be forgotten that the study of the mental characteristics of an individual child involves very much more than the application of a few standardized procedures. Since I myself have so often been criticized for my supposed 'exclusive reliance on mental and scholastic tests', may I quote what I said in the preface to an early volume on that subject? "Tests infinitely more scientific than those which have so far been devised will still form only the beginning, never the end, of the examination of the child. The scientist may standardize the methods: to apply those methods, and to appraise the results, demands the tact, the experience, the imaginative insight, of the teacher born and trained".[2] There are numerous mental qualities and educational achievements for which no

[1] See *Handbook of Tests for Use in Schools*; cf. also Schonell, F. J., *Backwardness in the Basic Subjects.*

[2] *Mental and Scholastic Tests*, 1921, p. xxi.

trustworthy tests whatever are available. Indeed, perhaps the most important qualities of personality, certainly the most important achievements of education, are things that can never be tested. The teacher must avoid the error of estimating his success with the backward child *solely* by comparing this year's test-results with last year's.

Secondly, if a teacher thinks of applying tests, or possibly (and very laudably) of trying to construct tests of his own, he should be careful to note the special limitations of whatever he is proposing to use. The most important element in test-construction is the preliminary testing of the test. Both the interpretation of tests and the construction of tests look much simpler than they really are. Unfortunately, there are a large number on the market which appear quite plausible on the surface but have never been properly checked; and many local education authorities seem nowadays to be quite content to adopt tests that no one has scientifically calibrated. The teacher who wishes to choose a test for some specific purpose of his own should accordingly ask himself these questions: "Has this test been constructed by someone who is experienced in test-construction? Have its reliability and validity been duly ascertained, and, if so, what are they? In particular, are they good enough for my present needs? And, finally, am I myself capable of applying this test, or is it one of those difficult technical instruments that require special training and experience before they can be properly used and correctly interpreted?"

A word or two of caution seems also needed by those who are enterprising enough to think of framing tests of their own. Whether they are planning to publish them or not, they should always ascertain beforehand by actual trial that the tests do not merely look plausible, but are in fact both reliable and valid. Further, in drawing up such tests it is important to follow an adequate scientific procedure. A standardized test is not composed like a question paper for a terminal examination, where the examiner sits down and scribbles off a few suitable problems just as they come into his head. A psychologist's test is always based on rational principles and some explicitly formulated hypothesis.[1]

[1] It is, I fancy, the somewhat credulous and mechanical use of mental and scholastic tests constructed by those who are not experts in test construction that is largely responsible for the attacks recently made on the so-called 'test movement' by those who, though no doubt expert in other branches of

First of all, the constructor must clearly define the quality that he proposes to measure and have some evidence that such a quality really exists. Secondly, he must have a definite notion of the signs or symptoms, the responses or the reactions, by which that quality is ordinarily manifested. Thirdly, having collected material in accordance with the requirements thus laid down, he must undertake what is called an 'item analysis', that is, he must attempt to discover by means of preliminary experiments which particular 'items' (problems, questions, exercises, or the like) are the most suitable and trustworthy, and reject the rest. Last of all, when he has compiled and arranged the final version of his test, he must assess its 'reliability' and 'validity'. 'Reliability' (i.e. self-consistency) is most readily determined by applying the same test twice to the same batch of children, and correlating the two sets of results [1]; 'validity' is best judged by applying it to a group whose individual characteristics are already well known as a result of prolonged and careful observation extending over several years. These preliminary studies demand time and trouble. If for practical reasons they are out of the question, then the teacher should realize that he cannot put very great faith in the results secured.

psychology, are not sufficiently experienced in individual psychology to distinguish authoritative views and practices from unauthoritative. I have attempted to support these contentions more fully (with practical illustrations of the value of rational principles of test construction) in an article on 'The Theory of Mental Testing' in the third *Year-Book of Education* (Evans Bros., 1950). It may be noted that the multiplication of hastily constructed tests has raised similar doubts and problems in the United States. In a recent number of *Educational and Psychological Measurement* (XI, 1951, pp. 151 f.) Dr. J. C. Flanagan pleads strongly for 'The Use of Comprehensive Rationales in Test Development', and one of my former students, Dr. R. M. W. Travers, discusses in suggestive detail the importance of 'Rational Hypotheses in the Construction of Tests' (*loc. cit.,* pp. 128–37).

[1] This device seems to have been first suggested by Cattell's pupil, Clarke Wissler ("The 'precision' of a test may be estimated by correlating successive trials", *Psychol. Mon. Sup.*, III, 1901, p. 60). The German name 'reliability' (*Zuverlässigkeit*)—a little misleading in English—was introduced by Spearman, and is now almost invariably used. However, correlations between successive occasions, when duly factorized, prove to depend almost as much on the variability of the children tested as on the fallibility of the test. Hence, for purposes of research it is better to undertake an 'analysis of variance'; this method has the advantage of being applicable to data procured from a single testing only. (Cf. 'The Reliability of Teachers' Assessments', *Brit. J. Educ. Psychol.*, XV, 1945, pp. 80–92; and *The Marks of Examiners*, 1935, pp. xiv, 262 f.)

VII

FACTORS OF PERSONALITY: EMOTIONAL AND MORAL CHARACTERISTICS

TEMPERAMENTAL CASES

DURING our studies of backward pupils in Birmingham and London we found that, in well over 10 per cent, the most searching inquiries could detect no physical, intellectual, or environmental condition to account for the child's failure in his work at school. It seemed, therefore, essential to turn to those aspects of the mind which the academic psychologist and the teacher in the classroom have often been tempted to overlook, namely, what are popularly called temperament and character.

Marjorie C—— may serve as a typical case. She was the only child of a former secondary school mistress, who had married a civil servant in a responsible post. Her parents are cultured, high principled, and comparatively well-to-do. Marjorie herself is a healthy and attractive girl of 12, dark-haired, dark-eyed, with a plump and rounded figure, and a manner and appearance decidedly older than her years. Apart from an attack of measles at the age of 6, she has, her mother says, 'never known a day's illness'. At school she is a favourite with the other children and popular with the staff. She is captain of the hockey team, leading lady in most of the school plays, and star pianist at the annual concerts. Her attendance has been quite regular. In class, says the mistress, 'she loves to be in the limelight', and is perhaps a little too ready to chatter and titter; otherwise her behaviour 'gives no occasion for complaint'.

At the psychological clinic the doctor confirmed her good health, and reported that she was 'entirely free from any nervous symptoms'; and so she was referred to me as 'educationally but not otherwise subnormal'. I found all her abilities to be well above the average. With the Binet scale her I.Q. proved to be 115. Her special aptitudes, memory, imagination, reasoning, and the like, were on much the same level. Her artistic gifts, particularly in drawing, embroidery, and music, were outstanding. She had an exceptionally wide vocabulary, and was quick in what

might be called polite repartee. Yet her written work, as her mistress observed, 'would be a disgrace even for a 10-year-old'. In tests of the more elementary school subjects her mental age was for reading only 9·8 years, for spelling 9·5 years, and for arithmetic 8·7 years. What can be the reason for this disparity?

Marjorie herself indicates the direction in which we have to look. "You can't do anything properly," she sagely explains, "unless you're really keen. I'm not going to be a school-ma'am; Mummy hated it. I'm not cut out for a shorthand-typist; and arithmetic I simply loathe. So why should I grind at lessons?" What, then, does Marjorie want to be? "Moura Lympany," is her prompt reply, which she amplifies in her own sprightly way. "Olive," she says—Olive, aged fifteen, lives next door, and they go together to the pictures—"Olive thinks I ought to be on the films: even Vivien Leigh was a dunce at school. But my music-teacher says that, if I practise every day, perhaps I shall tour the world as the most famous pianist of all time!" She quotes this prophecy with a disarming chuckle and a little wave of the hand, serenely smiling away the fond flattery of her friends. But it is clear where her real ambitions lie.

When first she visited the clinic her demeanour was surprisingly demure and restrained. The conventions of her home and her own natural gifts had manifestly imparted a genteel veneer which few of the children brought there would ever display. But a fortnight later, in the large playroom—romping with other boys and girls, while the only adult kept well in the background as an unobserved observer—her self-possession soon gave way, and her true nature rose to the surface. When she is no longer playing to a gallery of grown-ups, her behaviour sinks to that of a somewhat precocious child of nine. By temperament, it is plain, she is an impulsive, quarrelsome, and excitable young creature, lively and loquacious, openly preferring boys to girls, not always truthful, nor yet quite honest in her games with her friends.

Aesop tells the fable of a kitten transformed into a prim and well-conducted damsel. The girl's deportment was perfectly correct until, when her hostess's back was turned, a mouse ran across the floor. Marjorie's lapses from propriety were almost as abrupt.

One moment she is loudly laughing; the next dissolved in tears. She spends a whole hour fighting with one of the boys; and the

day afterwards her mother relates how she woke up in the night calling out in a panic. Today she may be insufferably bad-tempered, tomorrow frightened and worried, constantly running to her mother for affection and sympathy. And the inevitable upshot of these constantly shifting moods and feelings is that (as a former teacher says) she "never seems to settle down for an hour together", and consequently has dropped behind in all her work.

Her present headmistress gives a similar report. "The child's feelings are too strong for her brains. She is blown about like a weathercock. Music as a career is quite out of the question. She will never stick at anything long enough to do well."

Every teacher who keeps in touch with her old scholars knows what is likely to be the after-history of children of Marjorie's stamp, boys as well as girls. They continue to be bright, breezy, radiant, but erratic creatures, as unreliable as the sun in March, shifting capriciously from job to job, most of the time trusting to Mr. Micawber's immortal maxim—"waiting for something to turn up" Peter Van Tromp, the self-styled portrait-painter in Stevenson's *Story of a Lie*, is an excellent specimen of the type: "An artist, sir, yet a man of the world. Once an idea takes me I become its prey. It's like a pretty woman across the road. No use to struggle. I must dash after it."

Marjorie is an example of what one might expect to prove the most hopeful, but are actually the most perplexing, of all the various cases with which the teacher is called upon to deal—the child who is at once backward and bright. Thus, although 'backwardness' by definition is an intellectual condition, it becomes important to bear always in mind that its main cause may be, not any intellectual inferiority, but rather some anomaly in the child's emotional or moral character. If his intelligence comes up to or above the average, a lack of emotional balance may impede his progress in all the subjects of the school curriculum. If he is intellectually dull or physically feeble, this incessant change of interest and incentive, this constant intrusion of feelings and impulses, too strong for the child himself to control, may make his backwardness doubly resistant to the methods of the ordinary classroom. In all such cases, therefore, it is imperative to make a systematic study of the emotional as well as the cognitive aspect of the child's mental life.

ANALYSIS OF THE DYNAMIC ASPECT OF THE MIND

How then is the psychologist or the teacher to proceed? There is a widespread notion that peculiarities of temperament and character are matters primarily for the physician. At many clinics, for example, the psychologist tests intelligence and school attainments; and the study of the child's temperamental characteristics is left to the psychiatric specialist. For this unsuitable division of labour the psychologists of the past are in some measure to blame, since they treated the mind as little more than an intellectual machine, and tacitly assumed that temperamental differences were of no account unless they verged on the morbid or diseased. Now the psychiatrist may be a valuable referee for cases in which some neurotic or psychotic disorder is present or suspected; but he is more familiar with the different forms of abnormality than with the variations of the normal.

In this country, however, long before Freud and the psychoanalysts had stressed the influence of repressed instinctive tendencies and the surprising power of unconscious incentives, psychologists like Ward, McDougall, and Shand had drawn attention to the importance of affective and conative factors, and to the overriding strength of emotional impulses as compared with rational. All of them emphasized the part played by primitive and illogical motives in ordinary everyday life, and showed that human behaviour could be amazingly irrational without ceasing to be normal. During childhood, psychoses, psychoneuroses, and other pathological disturbances of personality or character are now known to be decidedly rare. But milder spells of crude emotional behaviour—rage in one child, fear and anxiety in another, foolish obsessions in a third, all in keeping with the child's natural temperament—are quite common up to a mental age of 10 or 11. After all, the normal mind includes unconscious as well as conscious processes, feeling and striving as well as knowing; and the personality of each human being is distinguished by its special affective and conative characteristics quite as much as by its cognitive or its intellectual characteristics. It is therefore the business of psychology as the science of the mind to investigate all these various aspects in their turn.

How then are we to assess and summarize the bewildering variety of non-intellectual qualities? Here, as before, the factorial

method of approach has proved eminently suggestive; and its findings provide the practical psychologist with a fairly systematic scheme for studying personality on its dynamic or orectic side as well as on the cognitive. And once again the broad results reveal a rough hierarchical arrangement.[1]

GENERAL EMOTIONALITY

On the cognitive side we are led to recognize a general factor popularly termed 'general ability or intelligence' similarly on the emotional side, as a large number of researches have demonstrated, the first factor we discover is a 'general factor' underlying all the more primitive emotional impulses—a tendency usually designated 'general emotionality' With this factor, however, it is not so much a deficiency of endowment as an excess of endowment that is likely to impede the child's mental and moral development. As a result he appears, like Marjorie, highly impulsive and excessively emotional in every conceivable direction. In many cases the same excitable disposition may be observed in other members of the family. It thus seems to be not only an inborn but also a hereditary trait. In fact, just as children differ in the degree of general intelligence with which they are naturally equipped, so they vary quite as widely in their general emotional characteristics. It is important to realize that these wide differences are perfectly normal variations. There need be nothing pathological about them.

The excitable child is easy to recognize. He is jerky, fidgety, and impulsive. All his judgments are slapdash, all his actions hasty. The muscles of his face are singularly mobile; and its expression is quick to change, often exaggerated, and not infrequently, like his character, a little one-sided or ill-balanced. His

[1] The idea that, on the motivational side as well as on the intellectual, the mind is organized in a hierarchical fashion is due primarily to McDougall (cf. *Introduction to Social Psychology*, pp. 440 f.). The earliest factorial evidence was obtained in an investigation which I carried out on 'The General and Specific Factors underlying the Primary Emotions' (*Brit. Assoc. Ann. Rep.*, 1915, pp. 681 f.). Both Cattell and Eysenck accept a 'hierarchical conception of the organization of personality'. In America, Clark Hull has introduced the notion of a 'hierarchy of responses and habit families', Tolman that of a 'hierarchy of demands', Hollingworth that of a 'hierarchy of adjustments'. But among more recent writings perhaps the fullest and most authoritative account is that given by Allport in his book on *Personality*, pp. 139 f.

speech is sometimes husky, sometimes a shrill staccato, nearly always voluble and rapid.

Even as they sit at work in the classroom, these volatile youngsters can be readily detected. They are perpetually looking about them, their eyes everywhere but on their books. However much they are told to sit still, they keep changing their posture—shifting their arms or shuffling their feet. When free, they are active, boisterous, full of noise and energy. In the playground or the street their behaviour is reckless and erratic. What they crave is not so much pleasure, as excitement and thrills. Reading and indoor occupations are too quiet and calm. Like Marjorie, they are the slaves of their temperament, and live in a whirl of continual emotion. Every impulse is intensely felt, and put immediately into execution, regardless of its real fitness for the situation of the moment. Teachers and parents nearly always dub them 'difficult children'. They are the hardest to manage at home, and at school may become the bane of the teacher's life.

Nevertheless, rightly understood and sympathetically treated, they are not so intractable as might be supposed. They are prone to good impulses as well as bad, to social as well as selfish. Sorrow, anger, laughter, fear, affection, self-assertion, self-submission—each instinct as it comes uppermost governs the child's actions, and then abruptly gives way to another, till the observer is left wondering what the child will do next. But, by playing on the right motive, such youngsters may easily be won over and led, and eventually shepherded by diplomatic management back into the proper path. The unstable child is not genuinely lazy, though frequently accused of laziness. Whenever his interest is caught he will work with feverish zeal, but generally in fits and starts. All that he does seems to spring from some passing enthusiasm or craze. Yet he readily tires, and is easily distracted by a new idea. In school and out of it, he is the plaything of his moods.

Since attention, concentration, and sustained application are quite beyond them, such children are inevitably backward in almost every subject. A diagnosis can often be made from their copybooks alone. The writing is irregular and untidy; frequently it displays ornamental eccentricities or flourishes, but is never clean or neat. Blots, smudges, erasures, word-omissions, are abundant. Their classroom exercises, and the letters they

write at home are generally scribbled at high speed; and it is plain that the pen could hardly keep pace with the rush of their impetuous thoughts. The girls may be rich in fancy and imagination; the boys quick and observant; but girls and boys alike jump thoughtlessly to sweeping conclusions and are guided more by their feelings and their fancies than by the intelligence they may possess. As a result, all that they say or write is hopelessly illogical. Their short-distance memory may be good; but their long-distance memory is almost invariably weak. When they remember a thing, they remember it for its significance or for the interest it has aroused, not by dint of sheer mechanical retention. Anything devoid of intelligible meaning—like the spelling of words or the arithmetical tables—they find difficult to recall. Facts and dates are speedily forgotten. General principles and general ideas, if not beyond their age or comprehension, may be at times quite well retained. But their own thoughts and utterances, though often fluent and shrewd, seem nearly always prompted by free mechanical association, and seldom linked by conscious or logical sequence: it is as though the current of emotional energy was forced to flow hurriedly on by its own overwhelming pressure, and always took the line of least resistance.

The key to this inconsequent behaviour is to be found in the fact that, in all such individuals, the primary emotions which every human being inherits are inherited with an exceptional degree of strength. If in addition to these strong emotional impulses a man is fortunate enough to possess a high intelligence, a firm will, and well-developed self-control, he will stand out as a vigorous and energetic character: personalities like these, as Carlyle has taught us, are common among the great men of history. If, however, his intelligence is merely average or perhaps unduly weak, then the net result will be a dangerous loss of moral equilibrium. His character quickly becomes unbalanced, like a primitive steam-engine with its governor out of gear. The psychologist has a convenient label for persons of this type. He calls them 'unstable'. Indeed, we might roughly measure the degree of instability by the ratio

$$\frac{\text{mental age for general emotionality}}{\text{mental age for general intelligence.}}$$

Although emotional instability, as thus defined, has of itself nothing pathological about it, it nevertheless provides a susceptible temperament, in which both delinquent and neurotic symptoms may easily supervene. This is most likely to occur where the conditions of the social environment, especially at home, are unfavourable to a healthy moral and emotional development during childhood. The resulting maladjustment may then have the gravest consequences. It is therefore of supreme importance that children of this type should be detected, watched, and tactfully trained while still of school age. As soon as the slightest sign of delinquency or neurosis is suspected, psychological advice should be sought.

We may then readily agree that, together with general health and general intelligence, general emotionality is one of the three most vital characteristics to assess.

(A) EXTRAVERTS AND INTROVERTS
TEMPERAMENTAL TYPES

On the cognitive side, it will be remembered, the factor that appears next in importance to the general factor, and is therefore the next most frequently observed, is a bipolar factor distinguishing the intellectual and the practical types. Similarly on the emotional and orectic side, after the general factor of emotionality, the factor most easily verified is also bipolar: but in this case it distinguishes two contrasted temperamental types—the aggressive or assertive and the repressive or submissive. In itself this so-called 'factor' merely means that there is sound statistical evidence that the various primary emotions can be classified into two main groups. Anger, pugnacity, curiosity, self-assertion, and to a lesser extent the social or the herd instincts, tend to go together: when strongly developed in the same personality, they consequently produce a demonstrative or aggressive type of personality. In much the same way, fear, grief, self-submission, tenderness, and disgust are correlated together; and, when strongly developed, produce a repressed or inhibited type.

Whether there is any physiological explanation of this curious antithesis we need not stay to inquire. We know that emotional reactions are largely dependent on what is called the autonomic nervous system, and that this system has two main divisions—the

sympathetic and the parasympathetic—which are, in the main, mutually antagonistic. We also know that the reactions of the autonomic system influence, and are influenced by, the glands of internal secretion; and that these in their turn have some effect both on emotional disposition and on so-called body-type. Nevertheless, although anatomical and still more physiological symptoms—blushing, blanching, sweating, trembling—are, as every novelist assumes, indicative of emotional tendencies, and although in the near future biochemical tests may throw further light on individual temperament, such indications are at present extremely untrustworthy. The reactions, however, are perfectly normal (unless of course some pathological condition is present as well), and certainly afford no ground for the popular notion that the recognition of temperamental type is a medical rather than a psychological affair.[1] It is the child's actual conduct, not his physical appearance or peculiarities, that betrays his emotional nature.

The two main types I have described have long been recognized, although, until quite recently, the recognition rested more on casual observation than on scientific research. Under various names the distinction (or something very like it) has been repeatedly remarked not only by literary and philosophical writers, ancient as well as modern, but also by professional psychologists like Bain, Binet, Wundt, William James, and Hermann Ebbinghaus. More recently still, C. G. Jung, basing his terminology on a slightly different theory, has proposed the names extraverts and introverts; and perhaps these are as convenient as any others.

The former type—the self-assertive, uninhibited extraverts—show little power of curbing or controlling their aggressive impulses, and are consequently not only difficult to manage at home and in school, but in danger of developing into juvenile delinquents. The timid, sensitive, unsociable introvert is apt to fall a prey to petty phobias and anxiety symptoms, and so turn into a potential neurotic. For somewhat different reasons, both are

[1] In point of fact, statistical investigations into the accuracy of the judgments reached at interviews by psychiatrists and by experienced teachers respectively show that, in general, the assessments of the latter are unquestionably more correct. In any case, the doctor is not an up-to-date authority on the assessment and significance of physiological reactions; and the popular notion that physiology is a branch of medicine is as mistaken as supposing that botany is a branch of agriculture.

apt to drop behindhand in their school work. The former, the unrepressed or assertive, often become centres of disturbance in the classroom. As a result, they are rapidly singled out by the teacher, and so usually brought to the notice of the psychologist. On the other hand, the quiet, shy, over-anxious youngsters seldom attract attention; and yet they need special care and psychological study quite as much as the more obtrusive extravert. Let me repeat, however, what I have already stressed: these so-called 'types' are not sharply separated, mutually exclusive groups, like male and female. They are merely the more extreme and one-sided instances of two antithetical tendencies that we all possess.

(B) THE CHEERFUL AND MOROSE

A second bipolar factor is discoverable—called (perhaps a little pretentiously) the euphoric-dysphoric factor—distinguishing the merry and the gloomy, the optimist and the pessimist, the sanguine and the melancholy, *l'allegro* and *il penseroso*. In the former the predominating emotions and moods are pleasurable; in the latter, unpleasant. This second factor, however, appears to be of greater importance for its influence on leisure activities than for its influence on school work. Together the two bipolar factors yield a fourfold classification of temperaments not unlike that which has come down to us from the Greek writers.

INSTINCTIVE TENDENCIES

Finally, as on the cognitive side so on the emotional, we are led to recognize a large number of more specialized factors. For the most part they correspond with what McDougall calls the primary emotional impulses. But nearly every one of them can, if we wish, be subdivided further still.[1]

In dealing with emotional characteristics it is important to distinguish, so far as we can, between what is inborn and what is acquired. But the distinction is here still more speculative and more difficult to draw than in assessing intellectual characteristics. If a full family-history is obtainable, a plausible guess can sometimes be made; and here we are aided by certain biological clues.

[1] For a fuller account of the main emotional tendencies and methods of measuring them, I may perhaps refer to the chapter on 'The Factorial Study of the Emotions' in the recent Symposium on *Feelings and Emotions*, edited by M. L. Reymert (McGraw-Hill Book Company, 1950).

In this country psychology as a branch of science owes its origin to writers of the evolutionary school like Darwin and Herbert Spencer, and their biological doctrines have greatly influenced the views of British psychologists. These early writers maintained that, like other mammals, all human beings are equipped, by virtue of their innate endowment, with a number of primitive tendencies which they call 'instincts'—the instinct of sex, the parental instinct, the fighting instinct, the instinct of flight, and so forth, some comparatively simple like the impulses which lead to the satisfaction of hunger and thirst, others far more complex like the sexual and social impulses. With nearly every one of these instinctive tendencies a simple or primary emotion seems to be associated—anger, for example, with the instinct of pugnacity, fear with the instinct of flight, affection or tenderness with the parental instinct, and so on. The physiological basis of these inherited instincts is highly elaborate, and includes, not only what Spencer would have called 'compound reflexes', with centres in the lower parts of the brain, but also biochemical influences such as those arising from the secretions of the related glands. Moreover, like all other inborn qualities, each of these various tendencies is inherited with varying degrees of strength in various individuals. Since, as we have seen, the glandular responses affect broad groups of instincts, there is here further evidence that differences in glandular secretions are in part responsible for temperamental differences. Thus the ancient Greek doctrine that temperament depends on 'humours' (i.e. humid secretions poured into the blood stream) contains more than an element of truth.

> When some peculiar quality of mood
> Doth so possess a man, that it doth draw
> All his affects, his spirits, and his powers
> In the confluxion all to run one way.
> This may be truly said to be—a Humour ! [1]

ACQUIRED EMOTIONAL CHARACTERISTICS

Most of these biological impulses—notably the reproductive instinct—take time to develop. They mature slowly and secretly, like the egg within its shell; and when they first emerge

[1] Ben Jonson, *Every Man in his Humour.*

they are still weak and plastic; they are thus greatly dependent on opportunity, experience, and training. Anyone who has watched the growth of a puppy or a kitten will have discerned that, even in these humbler creatures, instincts seldom appear abruptly as completely finished mechanisms; much less do they automatically supply a fixed pattern of action from the start. Rather they seem to be propensities impelling the creature to take an emotional interest in a few outstanding types of situation, and then, largely as a result of practice and habit, to adopt certain more or less stereotyped forms of behaviour. A Siamese kitten is not born with an ability to climb, but with a disposition to take a keen interest in climbable objects, and, after a good deal of progressive struggling, to learn how to scramble up a good many of them—the heavy serge curtain, the mantelpiece in the drawing-room, the shelf in the larder—attacking each in the most appropriate way.

Thus, even in the lower animals, instinctive impulses are highly flexible. And this is truer still of human instincts. To this day our children inherit all the cruder impulses of a young primaeval savage. Nevertheless, almost from the first weeks of life, the gradual development and the final fixation of these instinctive tendencies are predominantly determined by their social surroundings. And this formative process continues well into later years. Consequently, with older persons, and even with children of school age, it is always difficult to decide how much is due to the individual's innate constitution and how much is the result of his own personal experience and the effects of learning and reiterated habit. "Nature," says Bacon, "is often hidden, sometimes overcome, seldom completely extinguished." [1]

Any detailed discussion of acquired emotional characteristics would be too lengthy a matter to embark on here. The briefest indications must suffice. Broadly speaking, such characteristics depend on more or less elaborate emotional systems, each built up by connecting some central idea, object, or situation, with a number of strongly toned feelings and impulses. Just as acquired knowledge and skill are due mainly to what used to be called the process of association, so complex emotional tendencies, together with the attitudes and habits of conduct or behaviour, are, as the child grows up, gradually formed by the operation of much the

[1] *Essays:* 'Of Nature in Men'.

same principle. The term 'association', however, must be interpreted in rather a wide sense. The law of learning is not so much a law of serial linkage, like coupling trucks to make a train; it is rather a process of neural organization. But the organization may be narrow and mechanical or wide and highly systematized. Thus the emotional systems so formed fall very roughly into two main kinds. There are, first of all, those emotional systems in which the associations are of a relatively blind, unconscious, or automatic type. Perhaps the most familiar illustration is to be found in those wartime stories which tell how an infant has been taken for safety into some enclosed shelter, like an air-raid refuge or a school building, during a moment of general panic, and, as a result, has come years afterwards to feel an irrational fear whenever he finds himself penned up in a similar enclosure. Secondly, there are systems which are developed in a more conscious and rational fashion. Here perhaps the most obvious instance is a mother's love for her child, where emotions of every kind are linked up with the thought of her child and of the various situations in which she may find it. The child's loyalty to his favourite hero, the scholar's passion for his pet pursuit, the collector's enthusiasm for the treasures he hoards, all furnish illustrations of the same type of mental process.

Emotional systems of the first type are commonly called 'complexes'. Those of the second type are technically termed 'sentiments', and correspond to what are popularly known as interests and ideals. Of the more comprehensive sentiments, by far the most powerful is the 'self-regarding sentiment'—the emotional ideas that each person develops about himself—or what is sometimes called (somewhat pompously perhaps) his 'ego-ideal'. This master-sentiment expresses the social role he is seeking to play: it governs all his conscious behaviour and decides the impression that he strives to make. Just as the president of a society is *ex officio* a member of all committees, so a man's 'self-regarding sentiment' has a share in all his minor interests; and whenever there is a clash or conflict of motives, it delivers the casting vote.

As a result, nearly every child, as he grows up, develops what his fond parents may call his 'ambition' or his 'aim in life'; and, though its concrete embodiment may take its momentary colour from the latest film or the chatter of a friend, its essential nature has its unconscious roots in his inborn temperament and the half-

forgotten experiences of early childhood. Hence there is much to be said for Pope's advice to the student of human nature :

> Search then the ruling passion; there alone
> The wild are constant and the cunning known;
> The fool consistent, and the false confest.
> This clue once found unravels all the rest.[1]

From what has been said, it will be obvious that the emotional aspects of the child's life and behaviour can be modified far more readily than the intellectual aspects. The intellectually defective are limited for life; no amount of teaching or training can turn a genuinely feebleminded child into a normal and efficient citizen. On the other hand, emotional and moral defects can often be remedied, especially if the treatment starts at an early stage. Thus education in the broadest sense must include, not only the inculcation of knowledge and skill, but also the training of character; and the training of character is in turn very largely a matter of training the emotions. The old doctrine of moral deficiency, which was embodied in the Mental Deficiency Acts of 1913 and 1927, is no longer accepted by any reputable psychologist. The born criminal—*il reo nato*—is merely a pseudo-scientific myth. Certain children are constitutionally endowed with stronger instinctive impulses than others; and consequently may find it harder to control the instincts of hunger, of sex, of fighting, or the like. But that is all. The delinquency and crime themselves are the results of acquired habits and not of an incurable disposition.

The same holds true of neurotic tendencies. Judging by the evidence available, it is extremely difficult to prove that a general 'neuropathic diathesis' may be inherited, as many psychiatrists have assumed. There *is* an innate common factor which is as a rule highly developed in the neurotic and psychotic: but this seems to be nothing else than an excessive degree of general emotionality. When pathological tendencies are transmitted by inheritance, they appear to be highly specific.

As we have seen, definite psychotic symptoms are extremely rare before puberty; and in my experience the majority of the

[1] *Moral Essays*, Ep. I, iii, 1–4. For a classification of interests, regarded as motives, see 'The Factorial Study of Emotions', in *Feelings and Emotions* (ed. M. L. Reymert, 1950), pp. 545–6.

children who are dubbed psychoneurotic are not really suffering from any definite mental illness, but rather exhibiting behaviour which, in youngsters of their temperament, is perfectly natural.

With children of school age most of what are called moral or nervous disorders are seldom illnesses in the strict sense of the word. They are normal but non-rational reactions to common but abnormal situations—undesirable habits of behaviour which have been learned, in much the same way as desirable habits are learned. And the proper course is to help the child to unlearn them, and re-learn something better; it is, in short, a kind of moral re-education. This is not mere theory; it is a well-established fact. Recent attempts to follow up the after-histories of children referred to clinics for psychological treatment have convincingly shown that, where the treatment has consisted of training and re-education carried out or supervised by someone who is familiar with the psychological laws of training and learning, there the results prove to be far more successful than those obtained in cases where the treatment has been modelled on the psychotherapeutic procedures adopted by medically qualified psychiatrists in dealing with adults.

The ideal character is the well-organized character—the fully integrated personality. It involves a balanced and harmonious development of all the individual's mental potentialities, affective and conative as well as cognitive—emotional, moral, and practical as well as intellectual. With a child of the pre-school stage, or still in the infant or junior department, the parent or teacher, or whoever has charge of him for the time being, should seek to guide his budding interests and emotions, as soon as each of them emerges and while it progressively ripens. The golden rule is to begin at the earliest possible stage before any undesirable habit has become fixed and set. If, however, the child is of maturer years, and has already drifted into delinquency or neurotic disorder, then, although the task will prove much harder, the general principles are still the same : the most effective course will be, in almost every case, not an attempted 'cure' by medical treatment, but an attempted training by educational methods.[1]

[1] I have discussed this point more fully in various earlier papers and reports. For the detailed methods to be adopted, see 'The Development and Training of the Emotions in Children', *School Hygiene,* VII, 1916, pp. 1–14. In later papers some attempt was made to explain how what is loosely and not very accurately called 'psychotherapeutic treatment' operates in younger

In rarer cases where obviously pathological symptoms supervene—headache, insomnia, tics, habit-spasms or morbid obsessions—the child should be referred to a psychiatrist. In a few exceptional instances—particularly where morbid habits are arising out of half-unconscious emotional conflicts—a modified psychoanalytic treatment may prove beneficial, though it must be remembered that the claims of the various psychoanalytic schools have never been adequately substantiated by impartial evidence.

There can be no question that the leading psychiatrists of the present century—Janet, Freud, Adler, and Jung—have contributed a great deal to our detailed knowledge of how character is formed and how everyday conduct is motivated. They have also done much—perhaps a little too much—to interest both the medical and the general public in the emotional and irrational constituents of human behaviour. Unfortunately, their conception of the mind is largely speculative, and has at times been couched in extravagantly picturesque and even paradoxical language. Unfortunately, too, as a consequence, psychology has become identified with the more fanciful conjectures of those who have specialized in this narrow field. Quite a number of teachers, educationists, and social writers suppose that they are not 'thinking psychologically' unless their thoughts and observations are wrapped in this pseudo-psychiatric jargon.[1]

THE ASSESSMENT OF EMOTIONAL AND MORAL CHARACTERISTICS

It will now be clear that the assessment of what we have called the dynamic aspect of the child's life forms a highly intricate

children, both when it is successful and when it fails (cf. e.g. *J. Exp. Ped.*, VI, 1921, pp. 1–11, 66–74). It is curious that so few of those who, more or less dogmatically, prescribe such methods of treatment tell us what precisely they are supposed to do. I may note that more recently a growing number of leading American writers have, as a result of first-hand experience, begun to formulate a view of successful psychotherapy in terms of the theory of learning; see, for example, Shoben, E. J., *Psychol. Bull.*, XLVI, 1949, pp. 366–92; Shaw, F. J., *Amer. Psychologist,* IV, 1949, pp. 177–9; Magaret, A., *J. Consult. Psychol.*, XIV, 1950, pp. 64–70.

[1] It is, I think, to be regretted that so many confine their psychological reading to literature of this type. Those who wish for a sound and scientific review of existing knowledge of child psychology may be recommended to dip into the *Manual of Child Psychology,* edited by Leonard Carmichael (Chapman & Hall, 1947). They should note the cautious attitude adopted by the

problem. That is no reason for falling back on a short improvised list of character-qualities based on popular or pre-scientific conceptions and terminology. Here, as elsewhere, we must proceed according to a systematic plan. We shall seek first to estimate the main *innate* components of the child's emotional life—a much harder task than assessing the innate components of his intellectual life. We may begin by assessing his general emotionality; and then consider to what temperamental type he most closely approximates—extravert, introvert, cheerful, or morose; and finally, if a more detailed study is required, attempt to assess the strength of each of his instinctive tendencies—fear, anger (or bad temper), sex, self-assertion, self-submission, curiosity, affection, and the rest. Secondly, we shall need to consider his *acquired* sentiments and complexes—his feelings towards his parents and his teachers, his loyalty to his school or his companions, his dominant interests, his implicit moral ideals, the role which he habitually assumes in the recurrent situations of his life, and above all the repressed or semi-repressed emotional attitudes, which, more or less unconsciously, guide his everyday behaviour.

METHODS

There are four main sources to which we may look for information: (i) psychological tests; (ii) personal interviews; (iii) reactions to standardized situations; and (iv) reports from observers who have already been acquainted with the child for some considerable period, e.g. his parents and his teachers.

(i) *Tests.* Recent literature has been full of what are frequently called (in a somewhat narrow sense) 'tests of personality' They are by no means so new as is commonly supposed. Attempts at constructing tests for temperamental or emotional propensities are quite as old as attempts at constructing intelligence tests. The earliest were those devised by Sir Francis Galton and his famous disciple, Dr. Sophie Bryant, the first Headmistress of the Camden High School.[1] Of these perhaps the best known is the test of free association which was afterwards employed by psychoanalysts like Freud and Jung. Some of Binet's oldest tests, many it would seem prompted by Galton's work, were also

more objective writers towards psychoanalytic views about children (cf., for example, *op. cit.*, pp. 35, 753 f.).

[1] Bryant, S., 'Experiments in Testing the Character of School Children', *J. Anthrop. Inst.*, XV, 1886, pp. 338–49.

concerned with the study of temperamental differences, particularly as exhibited by his two daughters.

In this country, under the influence of McDougall and Sully, a small number of research students (of whom I happened to be one) endeavoured to develop tests for emotional characteristics based on various principles—apperception, association, and different physiological reactions. The results were suggestive but seldom conclusive. The devices then used—ink-blots, ambiguous diagrams or designs, pictures intended to reveal special interests or complexes, measuring pulse, respiration, temperature, sweating, and the like—have since been freely tried by different experimenters. Each method has had its ardent advocates. At the moment the most popular are what used to be called 'apperception tests', but are now rather misleadingly re-named 'projection tests'. Rorschach's version of the ink-blot test and Murray's thematic apperception test (based on a set of selected pictures) are the most familiar. Recent investigations, however, have shown that their reliability and validity are much poorer than is commonly assumed; and it is now generally agreed that tests for emotional and moral qualities have hitherto turned out far less satisfactory than tests for intellectual abilities.[1]

(ii) *Interviews.* The judgments reached as a result of one or two personal interviews—particularly the interviews of an experienced practical psychologist who has been trained in the art of interviewing young people—prove to be far more informative and far more trustworthy than the assessments obtained by formal tests. Interviewing, however, is a highly technical procedure. The popular notions of what qualities can be observed, and what signs or symptoms are most reliable, are extremely misleading. The technique itself, like the technique of examining a hospital patient, can only be learned by supervised practice. It is most effective when camouflaged as a game with conversational interludes, so that the child does not even suspect that he is up for observation and judgment.

(iii) *Standard Situations.* The situations involved both in

[1] This is partly because their interpretation has been based on the formal characteristics of the responses—a mode of interpretation always favoured by semi-popular psychology. If the responses are scored for content, the inferences, though less impressive, prove far more trustworthy. For an excellent summary of methods and results, see Vernon, P. E., *Personality Tests and Assessments*, 1953.

formal testing and in personal interviews are themselves somewhat artificial, and therefore tend to evoke somewhat unnatural modes of response from the individuals subjected to such ordeals. To overcome these drawbacks I myself endeavoured to develop methods of observation which could be carried out under conditions approximating more nearly to those of ordinary everyday life. To secure satisfactory assessments it was necessary to stage-manage and standardize the situations so that the results elicited should be comparable from one person to another. With children such situations can best be arranged when they are made part of a game in a playroom set aside for the purpose, where other children can join in.

(iv) *Reports.* Most valuable of all are the reports based on prolonged observations made by competent and interested observers—for example, by the child's own teachers, who have presumably been trained to observe young people, and again by experienced home visitors, who are able and tactful enough to secure opportunities for seeing something of the child's behaviour out of school hours and among his family or friends.[1]

These reports can be rendered at once more comprehensive, and more closely comparable with one another, if they are guided or supplemented by a systematic questionnaire expressed in carefully defined psychological terms. So far as possible the answers should be based, not on impressionistic judgments, but on first-hand observation of actual facts.

Each of the four methods I have described has its own special advantages and its own limitations; and each should be used, whenever practicable, in studying the individual child.

THE SYNTHETIC STUDY OF THE TOTAL PERSONALITY

Having completed what may be called the analytic examination of the child, the psychologist or psychologizing teacher must finally attempt a reconstructive synthesis of all the facts that have been observed. Having pulled Humpty Dumpty to pieces, he has to put him together again. As we saw at the outset, measuring or testing separate capacities or tendencies is only the begin-

[1] A fuller account of the methods available for assessing the emotional and moral qualities of children will be found in an article on 'The Assessment of Personality', *Brit. J. Educ. Psychol.*, XV, 1945, pp. 107–20, where tables of reliability and validity coefficients are given, showing the relative value of the different devices.

ning, never the end, of the study of the individual mind. To submit a report on a child's personality which contains nothing but mental ages, I.Q.s, E.Q.s, and numerical scores furnished by standardized tests, is rather like Olivia's ironical proposal for reporting on her personal charms: "I will give out divers schedules of my beauty; it shall be inventoried, and every particle labelled: as, *Item*, two lips, indifferent red; *Item,* two eyes, grey, with lids to them; *Item*, one neck, one chin, and so forth." [1]

After testing the child, assessing his outstanding characteristics both innate and acquired, and investigating how the inner forces of his mind are interacting with the outer forces of the environment, the practical worker has to build up, as best he can, a living picture of the child's personality as a whole. It is at this point that the psychologist's procedure encounters the most frequent criticisms. During the past two or three years several books and papers have appeared which doubt, or even wholly deny, the applicability of quantitative methods to the study of human personality. Relying too exclusively on the results of mental tests, statistical psychologists, it is contended, are apt to present a very distorted and disjointed conception of the individual child. Dr. Alan Maberly, for example, the former Medical Director of the Child Guidance Council, declared that an individual personality can be adequately assessed only by the intuitive insight of an experienced psychiatric specialist: from its very nature, so he contends, personality is not amenable to the devices of natural science. Similarly, Dr. Winnicott asserts that "any attempt to deal with the matter statistically is entirely unconvincing, so that here the guesses of a clinician must be allowed more value than the statistician's arguments".[2] And Dr. Chambers has complained that "mathematical psychologists build

[1] *Twelfth Night*, Act I, Sc. v, ll. 263–7.

[2] Maberly, A., 'The Personality of the Problem Child', *Brit. J. Educ. Psychol.*, XVI, 1946, pp. 103 f.; Winnicott, F., *Survey of Child Psychiatry* (ed. Gordon, R. G., 1939, p. 31). Similar statements are quite frequently made in the smaller handbooks, intended for the general public, e.g. by Dr. Brian Kirman in *This Matter of Mind* (1952, pp. 38 f.). Readers should note that advocates of impressionistic methods in practical work are liable to be a little impressionistic in their theoretical discussions. Thus, Dr. Kirman more than once attributes to Karl Pearson opinions which were put forward by Charles Spearman (his chief opponent); and credits me with views which are very far from those expressed in my writings. For a fuller discussion of the whole subject see 'The Assessment of Personality' (Maudsley Lecture), *J. Ment. Science*, c, 1954, pp. 1–28.

numerical edifices, forgetting in their zeal the flimsy foundations on which their fabrics stand".[1] No wonder then that the practical teacher is beginning to ask whether all this psychological analysis is really able to help him in his efforts to study and cope with his less satisfactory pupils.

When we examine the arguments which these writers bring forward, we find that they generally assume that the 'mathematical' or 'quantitative psychologist', as he is variously called, relies on nothing but test-measurements and has no other way of checking their validity besides a coefficient of correlation. Certainly these are the simplest devices to understand and to apply; and therefore, in the more elementary textbooks, these furnish the stock illustrations of this mode of approach. But it is entirely false to suppose that they are the sole techniques that are available and form the only procedures that the psychologist employs in his practical case-studies or in his theoretical research.

To begin with, as I have already pointed out, every competent psychologist who uses mental tests has always insisted that such tests form only part of his general scientific procedure. He no more supposes that it is possible to get a complete conception of a total personality by applying a few isolated tests than a general practitioner imagines that it is possible to diagnose a constitutional disease by counting the patient's pulse and by taking his temperature with a clinical thermometer. Both rely on qualitative methods as well as on quantitative; and qualitative methods can be just as scientific as quantitative. Indeed, the criticisms I have quoted are very like those of the phlogistic chemists who complained that Lavoisier in his zeal for weighing and measuring quantities was entirely forgetful of all forms of qualitative analysis. Modern psychology, like modern chemistry, uses both devices.

But there is a second objection. "Each mental test," we are told,

[1] E. G. Chambers, 'Statistics in Psychology and the Limitations of the Test Method', *Brit. J. Psychol.*, XXXIII, p. 189, quoted by Professor Zangwill in his suggestive *Introduction to Modern Psychology*, p. 142.

Those readers who want an authoritative exposition of the 'foundations' of quantitative psychology as applied to educational problems cannot do better than refer to the relevant chapters in the excellent volume on *Educational Measurement*, edited by E. F. Lindquist (American Council on Education, 1950). See also the paper on 'Statistical Analysis in Educational Psychology' in *Current Trends in British Psychology* (edited by C. A. Mace and P. E. Vernon, 1953).

"can at best only measure one abstract aspect of the mind. Such a procedure inevitably ends by disrupting the total personality into a lot of detached bits and pieces." James and John are unique individuals. Just as they do not possess a single hair in common, so there is, strictly speaking, no single trait which both of them share alike. Even if they answer the same test-question in exactly the same words, each may have reached his answer by a process peculiar to himself. Now complaints of this kind might be justified if the psychologist stopped short when he had given the child's mental age or calculated his I.Q. But the psychologist is trained to watch the child's actual procedure, and, where necessary, to secure introspections from the child himself to supplement his own observations. Moreover, in the earliest educational reports in which mental tests were advocated and used, supplementary procedures were described for extracting a generalized picture from the joint results of a number of tests taken together. Which method is to be used in any given inquiry will depend on the investigator's purpose.

Probably the best known and easiest to understand consists in what I called 'psychographs', and later writers have called 'profiles'—a device which the teacher will find of much practical use. In a psychograph the results obtained in a dozen or more tests are plotted diagrammatically so as to give a typical zigzag curve for each individual child. All the component measurements must of course be expressed in equivalent units: for children it is simplest to use a mental age; for adults it is better to adopt standard measure (deviations from the mean in terms of the standard deviation), with percentile ranks scaled at the side in due proportion if the distributions are normal. The curve or 'graph' so obtained indicates not only the absolute scores (or deviations) for the several traits, but also their relations and mutual interactions. When compared with standard specimens representing commoner types, the shape or pattern of such a curve serves to portray the general shape or pattern (as it were) of the child's personality—at least as regards the particular aspects with which the tests are concerned. I may add that the 'reliability' of profiles can readily be calculated by using the 'pooling square', since that applies to correlations between differences as well as between sums.[1]

[1] L.C.C. *Report on Distribution and Relations of Educational Abilities*, 1917, section on 'Psychographs for Individual Children', pp. 65 f.: see more

A more exact procedure can be derived with the aid of factor analysis. The usual factorial method—based on correlating tests or traits—is usually supposed to give information about a number of persons for one specific trait at a time, namely, the hypothetical and composite trait termed a 'factor' But there is an alternative method—based on correlating persons—which will give information about one specific person in regard to a number of different traits at the same time. Indeed, whichever way we obtain it, a factor is in point of fact essentially a contrivance for assessing a number of characteristics simultaneously. Thus a 'factor' will serve to express the *pattern* formed by such traits in terms of a single index. Hence it is quite wrong to suppose, as many critics tend to do, that a factor always and necessarily represents merely a single isolated ability.[1]

The teacher who is already versed in these techniques will very possibly ask—how are we to assess the value of these various qualitative and multidimensional procedures? The application of the simpler correlational methods—the calculation of a reliability and a validity coefficient—is scarcely sufficient. Tested in this way, the traditional methods of interviewing, marking essays, forming complex intuitive judgments and diagnoses on the basis of clinical impressions, and the newer devices of the Rorschach psychograph or the responses to projection tests, all yield very discouraging results. And yet men of practical experience—teachers, psychiatrists, and clinical psychologists—still make use of them, because each seems to furnish information

particularly the representative psychographs reproduced in Figure 9 for children of different types.

For a more recent discussion, see the chapter on 'Batteries and Profiles', by Charles I. Mosier, in Lindquist's *Educational Measurement* (*op. cit. sup.*, pp. 764–810). I fully agree with Mosier in his criticism of the popular view that verdicts based on profiles are *more* accurate than those based on multiple (or bimultiple) correlation. Here as elsewhere we rightly need to 'beware of seeming simplicity'. He states that, to his knowledge, no explicit inquiry has been made either into the best order of arranging the composite scores or into the extent to which an individual's profile should agree with the 'criterion profile'. In my own diagrams these were both determined by a preliminary factor analysis: the tests or traits are arranged in order of their saturations, and the individual's approximation to the 'psychogram for the type' (the criterion profile, as Mosier terms it) is measured by his saturation. The same device can be employed to represent temperamental types (cf. *Factors of the Mind*, p. 427, Figure 1).

[1] Professor Zangwill, perhaps unintentionally, appears to convey this impression (p. 160).

which is otherwise unobtainable. Manifestly we need some more suitable way of evaluating the information thus secured.

One simple method has frequently been adopted—the so-called 'matching method'. As a result of his interviews (or whatever procedure he is using) the psychologist draws up a series of synthetic character-sketches for a small group of individuals; he gives these verbal portraits, without names attached, to a teacher who has been acquainted with each individual for a long period of time; and the teacher is required to match the delineations with what he himself knows of the several individuals, and so assign to each one the correct name if he possibly can. The percentage of successes obtained in such an experiment can be taken as an index of the psychologist's accuracy in making his synthetic portraits.[1]

The application of these methods of estimation to our present problem suggests that the impressionistic estimates favoured by so many 'clinical psychologists' may be valuable if used as starting points for sequential procedures, but hazardous if used as grounds for irrevocable decisions: they may be suggestive for the determination of past or present causes, but dangerous for the determination of future disposal. Thus, the psychologist need have no serious criticisms to urge against those who use 'projection tests' (e.g. the Rorschach ink-blots or the Murray apperceptive pictures) for throwing light on *possible* causes of a child's backwardness; but if the deductions based on them are used to decide whether a particular individual should be certified or whether he should be subjected to a surgical operation on the brain, then the precarious nature of the inferences should be most forcibly stressed.

I have ventured to glance at these newer technical developments, partly because it is desirable that the practical teacher should appreciate the need for the rigorous statistical methods used in modern research, but chiefly because popular textbooks written for the non-technical reader have led many people to suppose that the research-workers themselves have failed to examine the scientific basis of their work. For the rest, the majority will probably feel more convinced of the value of a psychological approach if it is judged rather by its results than by its foundations.

[1] Cf. 'The Assessment of Personality', *Brit. J. Educ. Psychol.*, XV, 1945, pp. 120 f. (Appendix on Matching Coefficients).

RESULTS

At child-guidance centres and elsewhere, as the figures printed in the annual reports reveal, the largest group of cases submitted to the psychologist for examination consists of educationally subnormal children. And the reader naturally asks if such cases have now been followed up for a sufficiently long period for us to gauge the benefits received. Are we in a position to say how far the expenditure of money, time, and labour has been justified by the results? The clinics themselves rarely publish after-histories. Indeed, the subsequent careers of children referred to the clinics cannot very readily be ascertained except by someone who is, or has been, a senior officer of the education department.

In London, with the willing assistance of several research students, I was able to follow up some of my own earlier cases; and more recently we have been able to collect a certain amount of data about children psychologically examined by other clinic-workers. Here I have space only for a few typical conclusions. Let us take as a convenient criterion of success the proportion of cases in which the child's ultimate educational attainments have reached at least 95 per cent of his innate intellectual capacity, as assessed by his mental age or I.Q. For backward pupils whose initial attainments were 85 per cent or less of their chronological age we obtain the following figures: (i) among children who were discovered during a general survey, but for whom no individual study or provision was subsequently made either by the school teacher or otherwise, 16 per cent; (ii) among children to whom the school teacher gave some degree of individual assistance, 31 per cent; (iii) among those referred to a child-guidance centre or its equivalent and subsequently given remedial treatment by the teacher on the basis of an intensive psychological examination, 55 per cent; (iv) among those given remedial treatment at the centre without any intensive psychological examination, 38 per cent; (v) among those given remedial treatment at the centre after an intensive psychological examination, 67 per cent. These figures appear to agree with those obtained in several other inquiries, outside London as well as within. They show first that individual assistance is of definite value, and secondly, that, if it is based on a preliminary study of the child's particular weaknesses and compensating aptitudes, the value of such assistance may be almost

doubled. It is noteworthy that, if the psychologist at the clinic makes no prior study of the individual child, the remedial teaching undertaken is hardly more successful than the help given in school by an experienced teacher who is keen enough to give special assistance or coaching along his own lines.[1]

[1] This last result was a little unexpected; but it is based on results obtained from more than one clinic. I understand that a somewhat similar result has been independently obtained from a recent investigation into the effects of remedial education in another educational area. Of the few reports from child-guidance clinics which publish data obtained from after-histories, perhaps the most thorough comes from Sheffield. This, however, does not deal specifically with backward or educationally subnormal cases, but with general results; and the chief conclusion is the greater efficiency of the work carried out while the clinic was in the charge of an educational psychologist as compared with the period when it was under psychiatric direction (cf. *The Child Guidance Clinic in Practice: A Report on the Sheffield Clinic for the Period July* 1940, *to June* 1943, summarized in *Brit. J. Educ. Psychol.,* XXII, p. 27).

VIII

PRACTICAL CONCLUSIONS

WE have now reviewed, briefly but in due order, all the more important points that are likely to call for inquiry in any particular instance of educational backwardness. We have seen that, in all such cases, it is essential to study every aspect of the child's development, physical as well as mental, emotional as well as intellectual. Nor will the survey stop with the examination of the child himself; the child's environment, especially his social surroundings, both at home and at school, in the past as well as in the present, must be considered with equal care. His present condition results always from the interaction of the two—organism and habitat, plant and soil, growing child and circumscribed environment. And the crucial question will be: how far is this particular child making an adequate adjustment to the requirements of his situation, whether in the classroom or out of it? Wherever he seems to be falling short, our task will be to assist him, within the limits imposed by his circumstances and his natural abilities, to achieve a more effective adjustment now and in the future, partly by modifying our treatment of the child himself, and partly by modifying his environment or even moving him to a better one.

There is no single or simple remedy applicable alike to every case. The causes at work, as will now be clear, are both numerous and varied. What the terms of the Act have led us to call the 'educationally subnormal' turn out on examination to be anything but a homogeneous group. Moreover, in almost every instance, not one causal factor, but several are nearly always responsible. What breaks the camel's back is not the last straw, but the accumulation of straws; and the only sure remedy is to remove each one.

Taking the figures from the educational surveys I have already mentioned, it would seem that the frequency of the various causes is approximately as follows. Broadly speaking, about two-thirds of the backward suffer from unfavourable *environmental* conditions, often grave enough to require a complete change to some-

thing better, if only for a time. About three-quarters suffer from unfavourable *physical* conditions—bodily weakness or ill-health, and the effects of past or present ailments—though these are rarely serious in themselves and as a rule play only a contributory part. Rather more than three-quarters are handicapped by defective *intellectual* abilities: here the commonest and most important condition is an inborn general intellectual inferiority—in plain language, sheer lack of intelligence. About one-third have to struggle with *temperamental* difficulties, most frequently with a general emotional instability. And finally, a small percentage, not much more than one-sixth of the whole group, are suffering, or have suffered, from unfavourable conditions within the *school*.

GENERAL PRINCIPLES

Although the school is seldom primarily to blame for the slow educational progress of these backward youngsters, much can be done by adapting school conditions more closely to their needs and limitations. In most cases this can best be effected by establishing special schools or special classes expressly for such cases. For an appreciable proportion the ideal measure would unquestionably be to remove them, at least for a period, to a residential school. No one of course would suggest such a step as desirable for all. Indeed, few would go so far as to urge removal from home solely on the grounds of educational backwardness itself. The child whose home is satisfactory is bound to lose much if he is banished from ordinary family life or barred from ordinary intercourse with normal companions.[1] But, where removal is inevitable on other grounds, there, it seems to me, the institution of a residential school for backward cases will prove a most valuable measure—how valuable only actual trial can show.

The methods of training to be adopted will be largely experimental. Different methods are suited to different types of defect, and frequently it is impossible to predict beforehand which procedure will be most successful. Whatever principles we adopt the

[1] How much is lost naturally depends on how home-like is the substitute home. I agree with Professor Valentine that the figures given in the *Report of the Convocation* for 1949 "do not seem to be by any means so discouraging as speakers on the 'family factor' had feared" (*Abnormalities in Normal Children*, Convocation Lecture for 1951, p. 59). As to the methods of compensation available and the spirit that should inspire such work, I need only refer to Dr. Frances Knight's previous lecture on *The Substitute Family* (National Children's Home, 1949).

treatment, to be effective, should not end in the classroom; it must deal with every aspect of the child's daily life, both during the school periods and during his hours of leisure. All this would be much easier to carry out in a residential than in a day school. Too often with the child attending an ordinary day school, all that the teacher succeeds in doing during school hours is undone afterwards. It is like dropping a ball of string that you have just wound up.

Meanwhile, experience in day schools and special classes of the more familiar type will supply us with a few useful indications as to the kind of modifications that will be wanted. The school itself must be organized afresh, with aims and with a curriculum quite unlike those of the ordinary school; and each class will have a programme and a timetable different from those of any ordinary class. The teacher too will require special qualifications; and the teaching methods will have to be suitably adapted to the psychological needs of the pupils.

SIZE OF CLASS

The prime requirement of all retarded children is more individual attention. Hence the first and fundamental characteristic of classes for the educationally subnormal should be their small size. The number accommodated will depend on many different conditions, and may even vary with the various subjects as well as with the age of the pupils. It used commonly to be assumed that in the ordinary elementary school the ideal class should average no more than 40 and in the special school for the mentally defective no more than 20. Accordingly, we might reasonably infer that for the dull and backward the size should be somewhere intermediate between the two, and should not exceed 30 at the outside.

QUALIFICATIONS OF TEACHER

Care and forethought will be required, not only in the choice of the pupils, but also in the selection of the teacher. Too often the headmaster, thinking first of his top forms and most promising pupils, leaves the backward class either to the youngest and least experienced of his teachers or else to the oldest, least competent, and least progressive; whereas what it plainly needs is a teacher of exceptional efficiency and wide resources. Different classes and different age-groups call for teachers of different types.

Hence each teacher's age, sex, health, personality, training, and special gifts, must be reviewed in relation to the work he has to do. In any case he will need a first-hand knowledge, not only of dull, but of difficult youngsters, and an observant eye for the symptomatic peculiarities of their everyday behaviour. He should be a man of practical rather than academic inclinations, with interests that are concrete rather than bookish, and a talent for manual work and artistic expression rather than for what is merely literary or scholastic. A training in psychology, practical, not merely theoretical, will prove a helpful asset. Above all, if he is to be really successful, he must look upon his task, not as a burden, but as a privilege.

The teacher of a backward group is bound to figure far more prominently in the lives of his pupils than he would in the lives of normal children in an ordinary classroom. Standing behind his desk, the visible embodiment of knowledge and power, he may at first inspire the dull and apprehensive youngster with something of the silent awe felt by little Cosette—the waif in *Les Misérables*—as she gazed at the resplendent showman, mounted on the dais of his illuminated booth: "Il lui faisait un peu l'effet d'être le Père éternel." The teacher must come down to earth, mix with his pupils on sympathetic terms, and deal with them, not in the mass, but as individuals. So far as possible, each child should come to regard him rather as a personal tutor than as the master of the class. Towards each one, and towards the various difficulties that beset them, he must cultivate an attitude that is human as well as scientific.

CASE-STUDIES AND PROGRESS RECORDS

With the backward child the first and most essential step is not to hurry up and teach him, but to try to understand him. The teacher, then, must start by thinking, not of the subjects to be taught, but of the pupils he is to instruct. As we have seen, lack of school progress is often a symptom only; and, before the symptom can be successfully treated, it is essential to study the nature of the underlying trouble and to discover its probable cause. Each child, therefore, must be made the object of a small intensive research.

The results should be systematically recorded. For every pupil who is educationally subnormal a permanent note of progress

and development should be preserved, and the case-histories kept up to date. From time to time each child will be re-examined and re-tested; and the data thus obtained, together with incidental observations on his behaviour and development, should be methodically entered up at least once a term.

MEDICAL ATTENTION

As we have seen, physical defects and bodily ill-health may form a contributory factor; and, even if they are seldom the main cause, they may nevertheless definitely impede any attempt to advance the child's educational progress. Hence a special medical examination should be arranged for each backward pupil at the start; and special provision may be needed for remedying the ailments or the defects so discovered. To be of real value the examination will have to be more thorough than those of the customary medical inspection. It should be carried out by a physician who is well acquainted, not only with the special disorders of childhood, but also with the way in which such disorders may affect mental and scholastic development. The ordinary inspection is liable to concentrate on the more serious illnesses and the more conspicuous defects: and school medical officers assure us that, in general, 20 to 25 pupils can be examined at a session[1]; that means, on an average, about 5 to 10 minutes per case. Now, with the backward, as we have seen, the physical handicaps likely to affect their work in school are not grave or definite diseases, but minor and more generalized conditions; and these require far more time to detect and investigate.

I myself would suggest that much more might be learnt if the medical officer could include in his examination, not merely actual abnormalities, serious or mild, but *variations within the normal range*. In particular, it would be most instructive to have complete records of the 'body-type' to which each backward child belongs. To some extent the child's physical type is no doubt influenced by nutrition and maturation, but largely it seems to be an innate and constitutional characteristic. It has an undoubted correlation with the temperamental and the intellectual type to which the child belongs, though how big the correlation is has never yet been precisely determined. At a

[1] Cf. Kerr, J., *Fundamentals of School Health*, p. 633.

residential school much valuable research could be carried out in this field; and, I believe, much helpful information would incidentally be secured in regard to many of the individual cases.[1]

CURRICULUM

There are no cut-and-dried syllabuses that can be handed out for classes for the educationally subnormal. The best plan will be to keep the curriculum as elastic as possible, and let the scheme of work for each class grow gradually, in close adjustment to the needs of the individual pupils. This means that it must be based on a continuous psychological study of the various members.

In considering the ultimate standards to be reached it will be desirable first of all to distinguish between those whose backwardness is accidental or acquired and those whose backwardness is due to an inborn and permanent dullness. With the former the transference to a special class for subnormal pupils may prove to be merely a temporary measure. When due attention is paid to school attendance, social conditions, bodily health, and the child's special weaknesses, his progress may be so improved during the first few months that eventually he fully makes up for what he had previously lost. With the majority, however, as we have seen, the educational backwardness is the result of an innate, all-round weakness. With them school progress is retarded because their whole mental development is retarded. Moreover, with such children the period of growth will last no longer than with others; indeed, it will probably cease a little earlier. The comforting notion that the child who develops slowly may continue to develop until in the end he catches up with the normal level is based on hope rather than experience.

[1] On the value of studying body-types I may perhaps refer to my volume on *The Backward Child*, Appendix II, p. 643. In a recent article on the need for 'Recording Human Constitution', Dr. R. W. Parnell (of the Institute of Social Medicine, Oxford) has made a very similar plea (*Eugen. Rev.*, XLIV, 1952, pp. 20 f.). He observes that, like most doctors, he himself had been "trained to record sickness, but (his) understanding of how to make useful records of people in good health was negligible". As he points out, unless a definite abnormality has been found, most doctors are generally content to enter in their case-records 'N.A.D.' ('nothing abnormal detected') and leave it at that. He recommends Sheldon's methods of 'somatotyping' rather than Kretschmer's simple classification of physical types. Neither are very scientific. I would prefer defining and measuring type-tendencies by factorial methods (see Burt, C., and Banks, C., 'A Factor Analysis of Body Measurements', *Ann. Eugen.*, XIII, 1947, pp. 238 f. and refs.).

Accordingly, with those who are likely to be permanent cases, the targets proposed should not be too ambitious. Roughly speaking, the progress of the educationally subnormal will be between half and three-quarters of the rate of the normal. By the age of 15, therefore, the attainments of the majority will not go beyond those of standards IV and V, i.e. the attainments of an average child of about 10 or 11. Certainly nothing more than this can be looked for in the more formal subjects. And we must therefore frankly content ourselves with a policy of limited objectives.

As a rule, the curriculum in a school for backward children will differ from that of the ordinary elementary school in two important respects: it will differ in its range, and it will differ in its content.

As regards range, we may assume from the very outset that the syllabus for the dull and backward will cover far less ground than the syllabus for normal children of the same age. From what has just been said, it plainly follows that any work in the lower classes (those corresponding to the old-fashioned standards I to IV) which would be merely preparatory to work in the higher classes may be excluded altogether from the timetable for the dull and backward. Nor will there be the slightest need to introduce those abstract technicalities so dear to the grammarian's heart—to "talk of a 'noun' and a 'verb', and such abominable words as no Christian ear can endure to hear." [1]

As regards content, the curriculum for such classes should be so planned that far more attention is paid to the concrete and utilitarian aspects of the work, and far less emphasis placed on the more abstract or scholastic aspects—particularly on the traditional three R's. Certainly a limited but thorough grounding in the fundamental elements is both right and necessary. Hence a limited amount of routine practice will be unavoidable. But, particularly in reading and arithmetic, chief stress must be laid on what the child will actually use in after-life.

Nowadays, I fancy, no teacher need fear an unfavourable criticism from the inspector because his pupils' attainments in the stock subjects of the elementary curriculum fail to reach the normal level. I recollect the closing comments of a report sent in by Dr. Kimmins, Chief Inspector for the London County

[1] 2 *Henry VI*, Act IV, Sc. vii, l. 45.

Council, after visiting a backward class in Limehouse. The children had been painfully coached to make a plausible show in reading and the four rules, and "each with parrot-tongue performed the scholar's part".[1] Dr. Kimmins praised the industry of both teachers and taught, and then concluded: "As with the dancing dogs and female preachers that so much impressed Dr. Johnson, the wonder is, not that they did it well, but that they should do it at all. Yet would it not be better to have them trained at tasks that come more naturally to their humbler gifts?"

The reading of the backward child should possess a practical aim and, if possible, an intrinsic interest, instead of degenerating into an academic exercise in pronouncing hard words in print. Let him at least learn to decipher the everyday notices and signs that he sees around him, to follow printed instructions for making things, using things, or getting about from one place to another, and (at a later age) to understand, so far as he is able, the circulars, the announcements, the official forms, which nowadays are showered on every inhabitant of a civilized community. As regards arithmetic, paper work like adding columns of figures or carrying out long division he will never need to do. But 'money-sums' and such mental calculations as are required in everyday shopping will be essential; and here the work must be practised day after day until it is quick, correct, and almost as automatic as that of a cash-register.

Often, however, what these backward youngsters want is not so much an entirely changed curriculum: it may be just a little personal help or a few judicious hints such as may assist them to surmount some minor obstacle at which they have stuck. Note when this or that particular child seems held up; observe the mistakes he is prone to make; watch his favourite mode of attack: and at once the reason for his failure may become clear. It may be that so far no one has shown him the right way to tackle his own special difficulties; and in consequence a trivial misunderstanding has checked his progress for weeks. Or it may be that he has missed or forgotten some essential scrap of scholastic knowledge—some portion of the multiplication table or the rule for 'borrowing'; and, as soon as this is explained, he will be able to forge ahead.

The errors of the backward nearly always need more attention

[1] Cowper, *The Task*, II, l. 735.

than those of the normal. Older teachers, brought up on Thring's *Principles and Practice of Education*, may remember a chapter with the whimsical title: 'Run the Goose Down'. Each mistake was to be patiently traced to its origin, and the background of the blunder, rather than the blunder itself, carefully put right. My colleague, the late Dr. Ballard, in one of his entertaining reports, provides an instructive illustration. At a school he was inspecting, a pupil was asked: "Why, when the Lord failed to answer, did Saul seek help from the witch of Endor?" The boy replied: "Because he hadn't got the Book of Numbers." The teacher dismissed this odd suggestion as 'Rubbish!' and simply repeated the true version. Dr. Ballard, however, was curious enough to extract a further explanation from the lad. Apparently he had supposed that, when the witch 'called up Samuel', she had done so by telephone, Saul having mislaid the Post Office Directory! In the absence of any information to the contrary, he had pictured the whole episode as taking place under the conditions of a twentieth-century civilization during the recent fighting in Palestine. Thus, says Dr. Ballard, "one little misapprehension, when duly examined, will often lay bare a very big one".

In general, however, no matter what the subject to be taught, the teaching should be so planned that the aim and outcome are rather to make the child an intelligent citizen and a competent worker than to turn him into a sound or accurate scholar. Our chief purpose must be to equip such children to meet those perplexing problems of later life—in industry, at home, and during the hours of leisure—which a brighter child would be able to solve by his own unaided wits.

With older pupils, who are approaching the end of their school career, the utilitarian motive should predominate. Their work might well be adapted to their probable future employments. The immediate aim will be, of course, not so much to teach the child a trade, as to teach him to take an intelligent interest in his (or her) future occupation, whether in or out of the home. Cultural subjects should not be totally neglected. But they must be simplified and suited to the children's interests, capabilities, and special gifts. And a good deal of their moral and emotional training might be linked with this aspect of their work.

Many of the backward, as we have seen, are also unstable;

and, if they are to form steadier habits of conduct and higher ideals of life, they will need something more than a scheme of education concerned solely with practical or material aims. Virtue in the abstract will mean little to them; and vague moral homilies will nearly always fail. But they are capable of fine personal loyalty and of keen enthusiasm for what has an intelligible and concrete appeal. Tales of heroism, stories of those who have lived simple yet noble lives, the development of a taste for what is decent, delicate, and even refined, will be more helpful than ethical talks or arguments. For such children, training for leisure will be of special moment. The attempt to enlist their artistic sensibilities may do much to prevent the coarser outlets for emotion from supplying the only channels for self-expression and self-enjoyment. Most of them are responsive to music, especially when allowed to take an active part. Many possess a vivid imagination—crude, but capable of cultivation. Drawing, brushwork, and the appreciation of pictures may therefore figure largely. Knitting and embroidery, dancing and dramatic displays will appeal to the backward girls: indeed, they might well be taught folk-dancing in the schoolroom before they take to jazz outside. With the younger children of both sexes rhythmic and eurhythmic exercises to music will not only strengthen and co-ordinate bodily movement, but will do much towards steadying and co-ordinating emotion and character.

TEACHING METHODS

In regard to the general technique of instruction, the chief guiding principles follow directly from what we have found to be the special psychological characteristics of these children. First of all, their intelligence quotient—which measures the ratio between their rate of mental development and that of the average child—ranges in most cases, as we have seen, from about 60 per cent to about 80 per cent; their educational quotient is lower still: at the outset it may be little more than 50 per cent. Hence with the educationally subnormal the general pace will need to be nearly twice as slow as that adopted for the normal child. This means, broadly speaking, that the backward child will require to hear a thing twice as often as the normal child, to have twice as many exercises on each problem, and to go by steps that are twice as easily graded. I do not know whether the old Greek

description was meant as a precept or a jibe; but it is sound enough as applied to the teacher of the dull: "The same person telling the same people the same old things in the same old way."[1]

Secondly, since the dull child is so limited in his capacity for understanding abstract notions and grasping facts at second hand through words, the teacher will have to present every new idea, so far as possible, in the concrete. Any efforts at getting the child to appreciate abstract formulae and generalized rules, in the hope that he may apply them spontaneously on the right occasion, will generally be doomed to failure. Instead it will be wiser to instil well-drilled habits of using the appropriate method until each functions mechanically, and to abandon any attempt to explain the reason why.

At the same time, it is to be remembered that, while the methods of teaching must be simplified, the subject-matter and general mode of approach should not be so childish as they would be in dealing with younger and more normal children of the same mental level. To treat the backward boy of eleven as though he were simply an average youngster of eight, giving him a standard III reader and setting him to work at standard III sums, may seem a natural method of helping him from a scholastic standpoint, but from the standpoint of the boy himself, who feels that in size, strength, and worldly experience he has travelled far beyond the childish limits of babies of eight, such puerile topics and humiliating treatment come as an insult rather than a help. A special technique of instruction must, therefore, be created to suit the peculiar needs of older boys who are undeveloped merely in the narrow intellectual sense. They really need new timetables, new subjects, new textbooks, and new methods of approach.

(*a*) *Physical.* To begin with, full recognition must be accorded to the fact that their physical growth is well ahead of their mental development. It is true that, as we have seen, many will at the outset be frail, delicate creatures and prone to petty ailments. And this will increase their liability to mental and emotional fatigue. Plenty of bodily exercise should therefore be introduced, particularly in the shape of games, organized and unorganized. Where facilities are available, gardening will form a useful adjunct. But, whether healthy or not, backward boys and girls of almost every type always do better when active in the open air.

[1] *Οἱ αὐτοὶ περὶ τῶν αὐτῶν τοῖς αὐτοῖς τὰ αὐτά.*

The amount of time spent in reading or writing at the desk, or sitting still and listening to the teacher, should be greatly curtailed. Oral lessons can often be taken in a sheltered corner of the playground with the children sitting on mats. Indoors the benches need not be screwed to the floor, nor the children to the benches. Portable tables and chairs may be substituted for the ordinary school furniture, so that the children may have more liberty and room to move about. When their minds begin to tire or their interest temporarily flags, they can go for a free run, or for a little sharp exercise out of doors.

(*b*) *Manual.* The amount of handwork should be considerably increased. To a large extent the classrooms might be arranged like practical workrooms. Hence both additional space and special equipment will be required. Tools, materials, and other apparatus will be even more important than the usual stationery and textbooks.

Handwork, merely as handwork, must not be thought of as a special activity appropriate to the backward child. It is not the sole panacea. And at all costs the teacher must avoid converting 'manual subjects' into yet another set of collective lessons. Generally speaking, he should choose those types of handicraft that are suited to the age and aptitudes of his class. Some he will select partly because they exercise the muscles and demand controlled and co-ordinated movement, and partly because they involve concrete problems, and so provoke thought and encourage self-correction; others, because they broaden the child's interests and lead to a practical knowledge of everyday materials and their handling; and others again, because they involve intellectual as well as manual dexterity, and are in some measure co-ordinated with other work of the moment or indirectly bear on the kind of occupation or employment which the child will probably take up in after-life. With the boys, the woodwork, metalwork, and leatherwork should include the countless little jobs that a handy husband might be called upon to carry out in the home—mending tables, taps, or the soles of shoes. With the girls, dressmaking, cookery, and other subjects of household economy will have their proper place. Domestic training can often be given most effectively by arranging that, for certain spells, each girl has her own separate task, changing over at the end of a month or term. Instruction on personal and infant hygiene will be essential for all.

So far as possible, at every stage let each pupil select his own task, and so set himself his own problems. To begin with, let him work at them quietly, with little or no outside help. And let him judge his success for himself, guided by the final results rather than by the comments of the teacher.

(*c*) *Concrete.* Quite apart from handicraft, much instruction may still be conveyed in concrete form. As we have seen, one striking difference between the dull child and the normal lies in the incapacity of the former to deal with abstract ideas and relations. But when he is given his problem in the concrete, his power of judgment will often come as a surprise. Keep him, therefore, in close touch with concrete situations and materials. Appeals to the ear should be supplemented, or even supplanted, by appeals to the eye and the muscle sense; mere listening and answering, mere work with the printed or the written page, by actual seeing and doing. At the earlier stages what is called (somewhat misleadingly) 'sense training' may be desirable. Faults that are put down to defects of the sense organs are often due merely to the child's lax perceptual habits. Help him, by dint of a little practice, to attend to and analyse whatever is before him at the moment; and eventually he may echo Thoreau's boast:

> I hearing get, who had but ears;
> And sight, who had but eyes before.

Pictures and models, made by the older children, can be used in training the younger. As the craze for television and the cinema sufficiently show, the *moving* picture makes a special appeal to the backward mind. Where no cinematograph is available for class purposes, the ordinary projection lantern may still be of service. And, so far as possible, the various transactions of the classroom should be linked with life and local activities beyond the confines of the school.[1]

TIMETABLES

In order to make room for the newer subjects and these novel methods of instruction, much that is traditional in the ordinary

[1] Space has not allowed me to discuss in detail the numerous devices for teaching reading and other subjects: for these the teacher may consult the books on p. 126.

curriculum may be scrapped without scruple. Dispense with all that neither appeals to the natural interests of the child himself nor bears closely upon his work or leisure in after-life. The idea that useless or uninteresting exercises may yet prove valuable as a mental gymnastic has little or no basis in fact.

In arranging the school timetable the old lines of demarcation between one subject and another may be dropped or cut across. Throughout, both topics and methods of instruction should be correlated as intimately as can be with the different interests and activities that emerge spontaneously at successive periods of the child's development. To a large extent the syllabus for each week or month may well be planned in terms of projects rather than of subjects. The projects will be concrete tasks or topics, arising out of the child's natural interests and everyday life—'Christmas', 'our food', 'our health', 'our neighbourhood', 'transport', 'the cup-tie'—each embodying a more or less definite aim, and the whole series progressively arranged so that the next steps in knowledge and skill will be taken in their turn, until whatever ground has been mapped out in advance as suitable for the age and intelligence of the class has at length been covered. There should be projects for the individual, projects for little groups of two or three, and projects for the whole class, with the class-master or class-mistress acting as tutor rather than as teacher.

INCENTIVES

Perhaps the most important requisite of all is a constant appeal to appropriate motives. In the ordinary school the normal child is usually expected to find a motive for himself: it is his duty to work as his teacher enjoins, and the injunction (it is commonly assumed) should of itself suffice. The duller child needs a sharper, a more varied, a more personal stimulus. Duty for him at this stage is little more than an abstract word: he will exert himself to the utmost only when he is spurred on by some concrete emotion. Half the problem of keeping such youngsters intellectually active consists in discovering the right incentives. Whatever they are set to do must embody some obviously worthwhile purpose—a purpose which their intelligence can readily grasp and in which their interest can be readily aroused.

This search for the natural interests of each individual child is greatly simplified when we have discovered his own peculiar

talent—where he is gifted rather than where he is weak. We must therefore make the most of each child's strongest points and compensating aptitudes. Most dullards will have failed so often that they will always be expecting to fail again. Give them something at which they can succeed, keep them eagerly as well as usefully occupied; and they will quickly begin to learn. So far as possible, avoid reproaches, and remove the ingrained sense of failure by giving each child some special kind of work in which he can quickly achieve a conspicuous improvement and feel the glow of a personal triumph. Never let the child lose heart: for once he has lost heart he has lost everything.

CHARACTER TRAINING

And this brings me to the last but most essential aim in the education of the dull and backward: in their case it is far more important to train character than to impart knowledge or intellectual skill. The well-worn line from Kingsley's *Farewell* might serve as their simple motto: "Be good, sweet child, and let who will be clever." Unfortunately it is not always realized that, just because he is not clever, the dull child needs extra help even when he is trying to be good. Readers will remember how, in one of H. G. Wells's stories, the vicar's wife finds that the dull little country girl she has taken as housemaid has slipped into a succession of peccadilloes—losing the grocery bill, breaking a china shepherdess, stealing money to buy a new hat, and finally trying to cover it all up by a series of transparent lies. "But how silly of you!" the vicar's wife keeps saying. Then the vicar arrives with a similar tale about the lapses and follies of their new groom, another rural product, who "can only reply to questions and remonstrances with a temper and a sulk" "But how silly of them!" echoes the vicar. He then goes on to confess that he had made much the same mistakes in his own early youth, and his wife declares that her desires and difficulties had been just those of the maid. "But we could discriminate between our ends and aims; we were quick enough to pick the right means and the right methods; and, if we slipped, we could explain our plight in plausible and tactful terms, without having to fall back on fibs or fury."

The dullard is too slow-witted to understand the complex moral demands of a highly artificial civilization; he is too ignor-

ant to amuse himself in the harmless semi-cultured fashion of the more intellectual. No wonder, therefore, if he succumbs, both at work and still more in his leisure hours, to the manifold temptations that encompass him. Three-quarters of our young delinquents and five-sixths of our habitual criminals are educationally subnormal as well as morally unstable. To strengthen the character of the dull and backward, and implant moral habits if we cannot successfully inculcate moral ideas, will be one of the surest ways to diminish crime.

How a sound moral education and religious training may best be given to children of this type I have not the space to suggest, and indeed it has already been discussed by others who have enjoyed a more direct experience of the problems involved.[1] But I venture to repeat that, even from the lowly standpoint of psychological and social efficiency, this aspect of the work should figure as the most important item in our programme.

If you find you cannot turn the innate dullard into a fair scholar, you need not consider you have failed. If you find you have turned a potential criminal into a virtuous and industrious citizen, you may claim to have achieved success. The dullard will always be dull; but he need not also be a wastrel. The most backward youngster that to my knowledge ever passed through the London schools turned out to be one of the kindest fathers, one of the most conscientious workers, and, in the end, one of the noblest heroes of the war.

> Unlearned he knew no schoolman's subtle art,
> No language but the language of the heart;
> By nature honest, by experience wise,
> Upright by habit, good by exercise.[2]

NEED FOR CO-ORDINATED RESEARCH

Finally, one further aim I am tempted to suggest. Throughout this survey it will have become increasingly plain that our understanding of the psychology of the backward child is still very incomplete and much in need of further confirmation. Thanks to

[1] I may refer once again to previous Convocation Lectures by Dr. Frances Knight on *The Substitute Family* and by Dr. Margery Fry on *Children as Citizens* (published by the National Children's Home).

[2] Alexander Pope, *Epistle to Dr. Arbuthnot.*

extensive investigations in the past we have discovered a good deal about the general causes of backwardness; but we know comparatively little about how those causes operate in detail. Least of all do we possess any convincing evidence about the relative value of the different methods of training and instruction. These I have tried to deduce from abstract psychological principles or to compile from the first-hand experience of practical teachers. But they urgently require to be tested and checked in the light of actual results.

To solve such problems the analysis of a horizontal cross-section of a school population, however large, is of little avail. We need longitudinal investigations as well as cross-sectional intensive studies of a few typical individuals as well as an extensive survey of whole areas. The ideal plan would be to compile a series of systematic case-histories for children whose development has been followed up throughout their school career and, if possible, during after-life. A residential school, where each child can be watched for several years as he develops and matures, could offer a unique and valuable chance, not only to assist the particular boys and girls who are studied in this way, but also to enlarge our general knowledge of the subject, and to make trials and experiments which will be of the greatest help to others who are labouring in the same field. But even in the day school much valuable information could be amassed if the teacher of the backward class kept careful records of his individual cases, and if these could be collected and collated by some competent expert.[1] Medical science has been largely built up from the patient case-studies carried out and compiled by the general practitioner, and published in the pages of the weekly medical journals. In the same way educational methods could be rapidly improved if the teacher could look upon himself, not merely as a practical instructor, but as a scientific student of the young. The records, however, must be objective, and the analysis carried out according to a systematic plan. In this way, and in this way alone, will the accumulated wisdom gained by each one be eventually placed at the disposal of all.

[1] Since this was written, the National Foundation for Educational Research, in its recently published Statement of Policy (1953), has expressed its willingness to give advice on points of detail, and "act as a co-ordinating office, for those teachers and education authorities who desire such assistance".

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